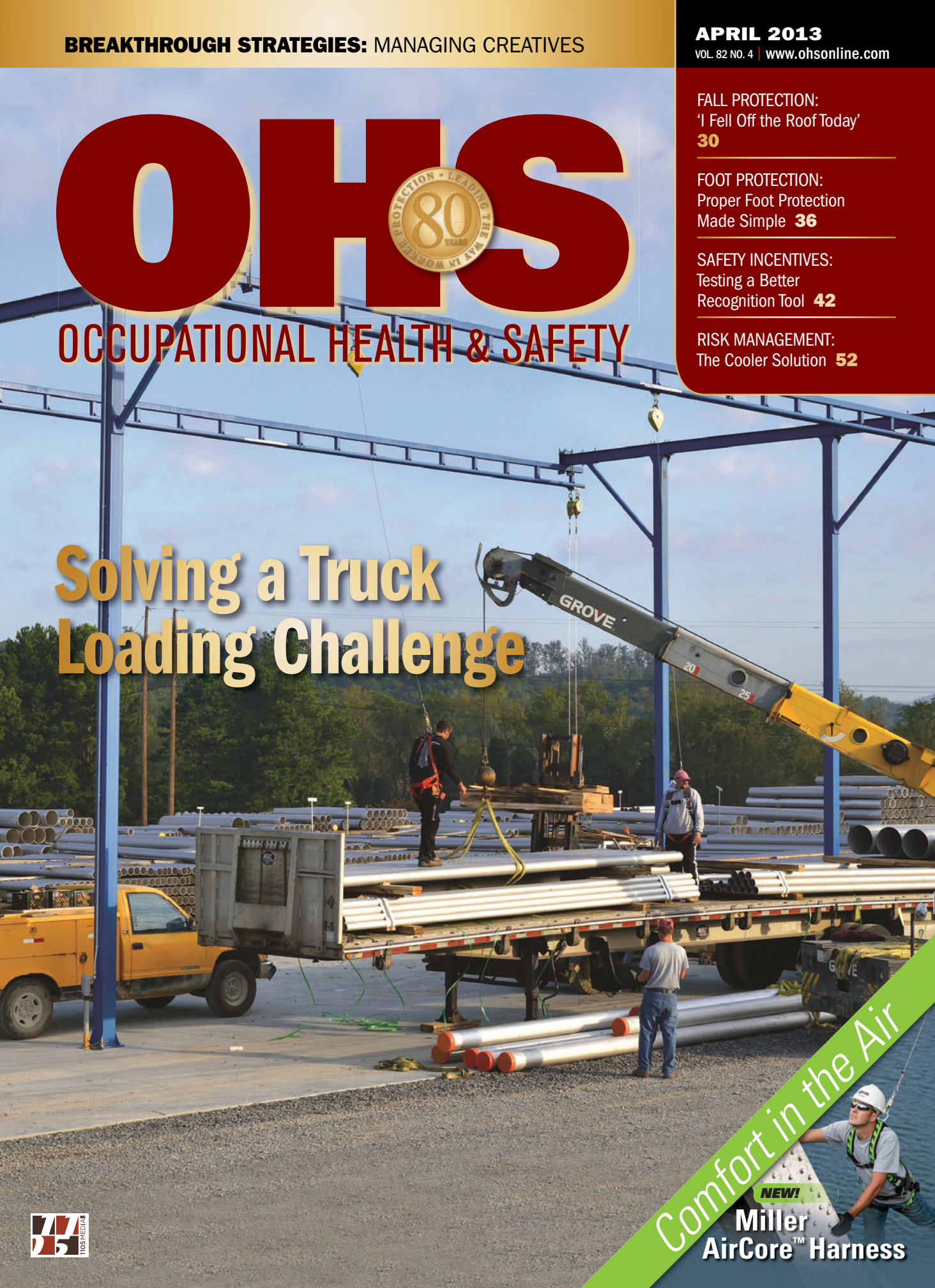


OHS



OCCUPATIONAL HEALTH & SAFETY

Solving a Truck Loading Challenge



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Thinking About Complacency

Something Richards Sarles, the general manager/CEO of the Washington Metropolitan Area Transit Authority, said in *Safety + Health's* "2013 CEOs Who 'Get It'" feature struck home for me: "There is no question that the biggest obstacle is complacency." Raise your hand if you agree.

Three years ago, holding up anyone from WMATA, known locally as Metro, as a safety paragon was laughable. A succession of train collisions, derailments, and track worker and passenger fatalities were so alarming that the Federal Transit Authority issued a blistering audit of its safety culture and members of Congress threatened to intervene directly in its operations. Sarles went to Capitol Hill to convince skeptics that his plan to improve the culture would work.

The plan appears to have worked pretty well. But Sarles believes the greatest threat comes from complacency, something I've also heard from SafeStart founder Larry Wilson and others.



Sarles believes the greatest threat comes from complacency, something I've also heard from SafeStart founder Larry Wilson and others.

vice president of sales at Brigade Electronics, which provides in-vehicle cameras and other safety technologies, and Dave Heidorn, government affairs director for the American Society of Safety Engineers. They agreed backovers are a significant, persistent challenge.

"The biggest thing we see in backovers is the employee on the ground not being attentive to what's going on. It's hard to stay attentive when you're a spotter working behind these trucks ten hours a day," said Dean Bernal, vice president of safety and risk management for J.D. Abrams, a highway construction contractor based in Austin, Texas.

These experts said they're trying to prevent backovers by using cameras and sensors, pedestrian recognition devices, policies, certified spotters, spotters working in pairs rather than alone, training programs, and even a companywide ban on cell phone use. "My point is, you've just got to be creative,"

said Odean Slaton. "There's not just one fix for all of this."

According to OSHA's announcement of the meetings, one OSHA database identified 358 fatal backovers from 2005 to 2010, with 142 of these occurring in the construction industry. **OKS**

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NFPA 2112

Should you be certified?

NFPA 2112, the “Standard for Flame-Resistant Garments for Protection of Industrial Personnel Against Flash Fire,” has been around since 2002, but in the past few years has skyrocketed in industry attention. While numerous fabrics are certified to the NFPA 2112 standard, more and more employers in industries with flash fire hazards—such as petroleum refining, chemical processing, manufacturers generating combustible dust and the oil and gas drilling industries, in particular—are looking for their FR garments to be certified, as well. This could be fueled in part by OSHA’s increased safety inspections in these industries, leading to a sharp rise in the use of FR garments as additional pieces of personal protective equipment for certain job categories.

The certification guarantees that the garments themselves have been certified as a whole, finished product, including all items that make up the garment, such as fabric, thread, zipper tape, buttons and trims.

So what does it mean to have an NFPA 2112-certified garment? This additional certification is performed by an independent third-party organization, such as Underwriters Laboratory (UL), as is required by the standard. The certification guarantees that the garments themselves have been certified as a whole, finished product, including all items that make up the garment, such as fabric, thread, zipper tape, buttons and trims. NFPA 2112 also requires an ongoing audit for FR garment manufacturing facilities to verify that there is a quality control process in place to make

sure all the garments are manufactured as certified. This process gives the safety manager confidence and trust that every garment ordered meets all the requirements of the NFPA 2112 standard.

In response to the growing need and interest in NFPA 2112-certified garments, Workrite has taken an extra step by placing external labels onto these certified garments to give safety managers and employers a quick visual confirmation that the garments their employees are wearing are NFPA 2112 certified. An internal label is required for all certified garments, but this new, easily seen “NFPA 2112” external label guarantees that the employees are wearing garments that are certified to these stringent safety standards.

OSHA doesn’t currently require that whole garments be certified to NFPA 2112, but many safety managers have decided to take this additional safety step for their employees. With more than 160 NFPA 2112-certified styles, Workrite has been working to offer this assurance to their customers since the standard was introduced more than a decade ago. Workrite has certified a variety of their FR workwear, including coveralls, shirts, pants and non-insulated outerwear in Ultra Soft®, Indura®, Nomex® IIIA, Protera® and Tecasafe® Plus.

Workrite’s innovative external label provides at-a-glance verification that a garment is certified to NFPA 2112, making the task of compliance monitoring quick and easy—a necessity for the fast-paced nature of these jobsites. In order to continue to provide the kind of service and quality FR workwear Workrite has become known for in the past 40 years, they are continually adding new NFPA 2112-certified styles based on customer needs, updated industry standards and OSHA requirements.



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Driven to Distraction

More than 8 percent of full-time U.S. workers commute an hour or longer to work, and 61.1 percent of those with long commutes drive to work alone, the U.S. Census Bureau reports.



Rather than long commutes, however, NHTSA's plan to mandate event data recorders — black boxes — in all light vehicles made after Sept. 1, 2014, is the issue that prompted more than 1,000 comments from the public by mid-February 2013. Most commenters complained the proposal threatens a gross invasion of their privacy rights, but the Alliance of Automobile Manufacturers submitted more substantive objections.

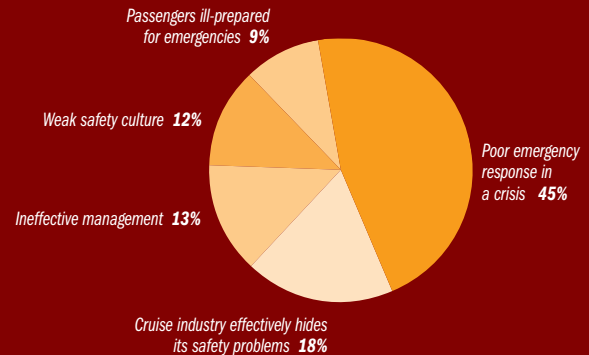
Turning Back to Infrastructure

From NTSB Chair Deborah A.P. Hersman to major construction trade associations, the U.S. Chamber of Commerce, President Obama, and the chairman of the U.S. Senate Committee on Commerce, Science, and Transportation, numerous leaders in Washington, D.C., are calling for making major investments to repair America's roads and bridges.

No Faith in Cruise Lines?

Voters in a recent ohsonline.com poll said what two recent major incidents involving Carnival lines have in common are poor emergency response and an industry that hides its problems well.

What do Carnival's two embarrassing cruise ship mishaps, Costa Concordia grounding and the Carnival Triumph towed to Mobile after losing power, have in common?



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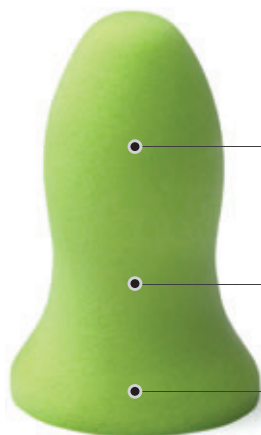
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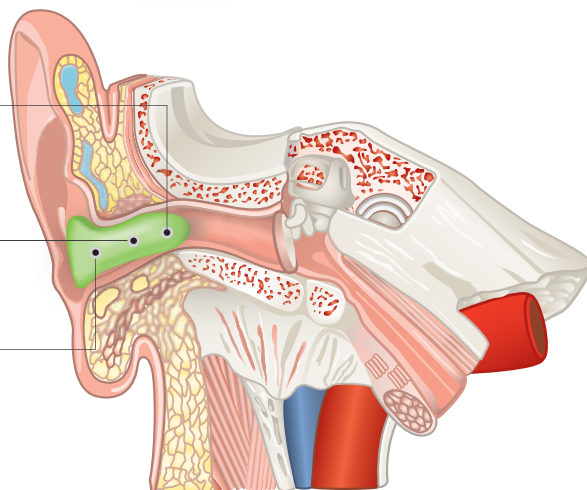
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On the Move

Michael J. Lewis has been promoted to executive director of the **Southwest Research Institute's** Environmental, Safety and Quality Systems Program. He previously was director of the Environmental and Safety Systems Department. Lewis joined the institute's staff in 1987 as a research engineer, working on projects involving ballistic and explosives studies, vulnerability assessments, and blast-resistant facility designs. He left SwRI (www.swri.org) in 1990, but returned in 2006 following employment as a district manager at the engineering consultant company **EFI Global**. . . . **Thales Communications, Inc.**, which manufactures tactical communications products for the military and first responders, appointed **Todd Borkey** as chief technology officer and vice president of Strategic Initiatives. He is responsible for leading the management of a portfolio that includes Sonars, Ship Combat Management Systems, Helmet Mounted Displays, Cyber Security, Training and Simulation, and Radars. Borkey previously was CTO for DRS Defense Solutions. "Todd's expertise and leadership will be instrumental in the continued growth of our company," said **Michael Sheehan**, president and CEO of Thales Communications. "With the expansion of our capabilities and our product portfolio, we are well positioned to significantly increase our offerings, and our value, to our customers." . . . **Focal Upright Furniture** (www.focaluprightfurniture.com) announced its first retail partner is **Ergo Depot**, an ergonomic furniture retailer



headquartered in Portland, Ore. "We are thrilled to be working with Ergo Depot," said **Martin Keen**, Focal's founder and CEO. "**David Kahl** and the team at Ergo Depot share my passion for products that help people live better and work better.

They are very thoughtful about body-conscious design and also product quality. I think this is why the Ergo Depot team is so excited about our 'lean-to-stand' approach, which is ergonomically beneficial, yet completely revolutionary in the market." Focal's Locus Workstation won an Attendees' Choice Award at the 2012 National Ergonomics Conference and Exhibition. . . . Grand Rapids, Mich.-based **Summit Training Source** recently joined the **Health & Safety Institute** (HSI, www.hsi.com) family of brands. "Our shared organizational values of creating technically accurate, engaging, and results-orientated training solutions and a foremost commitment to customer service make Summit and HSI the ideal combination to offer clients world class resources to protect and save lives," said **Bill Clendenen**, CEO of HSI, which has its headquarters in Eugene, Ore. "HSI delivers training to help save lives; Summit's training portfolio helps protect lives. Together, we offer clients a total health and safety training solution," said Summit President **Bryan Hornik**. . . . **Nader L. Mamish** has been named director of the **Nuclear Regulatory Commission's** Office of International Programs by NRC Chairman **Alison M. Macfarlane**. Mamish, previously an assistant operations director, began his career with the NRC in 1992 as a radiation specialist in the former Region V office. He worked as a senior enforcement specialist in the Office of Enforcement before holding leadership positions in the Office of Nuclear Materials Safety and Safeguards and the Office of Nuclear Security and Incident Response. He succeeds **Margaret M. Doane**, who became the agency's general counsel in October 2012. "Nader brings a strong executive and safety-focused background to his leadership of this important NRC office," Macfarlane said. "He has extensive knowledge of how the agency operates, both at the regional and headquarters level. His experience working on operational, radiation safety, materials, and emergency preparedness matters will prove valuable as our agency continues to promote nuclear safety and security within the international community, as well as the importance we place on the oversight of an independent regulator." . . . **Honeywell** appointed **Gary Lederer** to lead Honeywell Life Safety — Fire Solutions Americas and oversee Fire Systems and System Sensor, both part of the Honeywell Automation

and Control Solutions' Life Safety business. He will report to Honeywell Life Safety President **Mark Levy**. Under Lederer, **Todd Rief** will lead Honeywell Fire Systems Americas and **Tom Potosnak** will continue to lead System Sensor Americas. Lederer joined Honeywell in 2000 with the acquisition of the Pittway Corporation and has held leadership positions at System Sensor, Honeywell Environmental and Combustion Controls, and he headed the HLS Europe, Middle East and Africa (EMEA) Fire Systems business. "Gary is an accomplished leader with many years of experience building our Life Safety business, introducing a broad range of fire system products to market and continuing to focus on our customers," Levy said. "Under Gary's leadership,

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our seasoned management team, highly recognized brands and superior customer service will continue to position Honeywell as a strong industry leader.” **Allen Fritts**, who was president for Honeywell Fire Systems Americas, and **John Hakanson**, who was president of Honeywell Sensing and Devices, under which System Sensor currently operates, are retiring and will assist with the transition through May 2013. . . . The **Northwest Indiana Business Roundtable** (www.nwibrt.org) elected **Joe Coar** of **Tonn & Blank Construction, LLC** chairman of its Executive Committee and **William Satterlee III** of **Hoepfner, Wagener & Evans, LLP** as vice chairman; **Dewey Pearman** of the **Construction Advancement Foundation** as secretary; **Tim Ross** of **Franciscan Alliance** as treasurer; and **Andrea Pearman**, CEO of **Diversified Marketing Strategies, Inc.**, as interim executive director. In partnership with the **Construction Advancement Foundation of Northwest Indiana**, the organization in March 2013 began offering a Supervisory Training Program for construction professionals that was developed by the **Associated General Contractors of America**. Its Construction Awards Banquet is scheduled for May 16 in Merrillville, Ind.

Former Surgeon General C. Everett Koop Mourned

Public health organizations and HHS Secretary Kathleen Sebelius paid tribute Feb. 25 to Dr. C. Everett Koop, a former surgeon general who blazed a difficult trail for other surgeon generals to follow. Koop, who served from 1982 to 1989 after surviving a confirmation fight when pro-choice forces feared he would be a strong voice against abortion, became a stalwart champion against smoking and is best known for a sound federal AIDS and HIV prevention policy.

HHS Secretary Kathleen Sebelius posted a statement about his death: “I am deeply saddened by the passing of former Surgeon General C. Everett Koop. Dr. Koop was a fearless public servant and a pioneering pediatric surgeon. I was honored to have worked with him on several occasions. During his nearly eight years as ‘America’s Family Doctor,’ he not only advised Americans about improving their health, he brought important public health issues to the country’s attention. He was an important and early voice in the fight against AIDS, and will long be remembered as the

Surgeon General who educated America about this disease. Dr. Koop was also vocal about reducing tobacco use and stopping people from taking up smoking. While Surgeon General, he issued eight reports on tobacco, including the nation’s first on the health consequences of secondhand smoke exposure. Our thoughts and prayers are with his family, and we are grateful for his public service.”

Dr. Georges Benjamin, executive director of the American Public Health Association, issued this statement: “With heavy hearts, we pay tribute to our friend and colleague, C. Everett Koop, MD, ScD, who passed away today. He was 96. When you look back at the last 75 years, it’s impossible to bring up our nation’s greatest heroes and not mention the contributions of Dr. Koop. He had three careers. First, he was a trailblazer who led the effort to found the specialty of pediatric surgery; he then completed his amazing tenure as our 13th surgeon general; and finally, in his post-surgeon general years, he served as a mentor to the nation and a voice of reason on the importance of population health. He was a vigorous advocate who used his position as the nation’s ‘Top Doc’ to inform us all about a range of health threats, from HIV/AIDS to tobacco. His efforts were masterful and effective. He awoke a sleeping nation to the risks of HIV/AIDS and prodded policymakers, including a president, to take action on leading public health concerns.”

HHS Releases Framework for Funding H5N1 Research

Dr. Francis S. Collins, M.D., Ph.D., director of the National Institutes of Health, on Feb. 21 announced HHS has released a new framework to guide federal decisions about funding research that is anticipated to generate highly pathogenic avian H5N1 viruses that are transmissible among mammals by respiratory droplets.

This research became highly controversial in the past two years because there was great concern the research findings could be used by terrorists to create a public health crisis. But while two papers about the research that had been delayed were ultimately published, Collins and Dr. Anthony S. Fauci, director of the National Institute of Allergy and Infectious Diseases within NIH, explained last June that the fears sparked by media coverage

when publication was stopped were overblown: One of the authors was asked by *Science* reviewers to supply lethality data, and when he did, it was reported that the transmitted virus had killed the ferrets involved in the experiment. However, ferrets that inhaled airborne droplets of the mutated virus survived — and because this is the way people could be exposed, it suggests humans are at less risk than the earlier reports suggested. The animals that died instead had the virus administered directly to their tracheas, a commentary written by Collins and Fauci explained.

Collins noted Feb. 21 that this research is important for understanding whether the virus could evolve to become more readily transmissible among mammals, including humans, and for creating countermeasures if it can. “The new framework, developed with extensive international and public consultation, outlines a robust review process that takes into account the scientific and public health benefits, the biosafety and biosecurity risks, and the appropriate risk mitigation measures pertinent to the proposed research,” he wrote in the announcement posted by HHS.

M&A News

NSF International, which develops standards and provides product testing and certification services for the food, water, and health sciences industries, recently acquired the **INASSA Group** of Lima, Peru, which has three segments: technical analysis, laboratory, and sanitation. It is known as International Analytical Services S.A.C., (INASSA), Environmental Laboratories Peru S.A.C. (EnviroLab) and Servicios Integrales de Saneamiento S.A.C. (Servisane). (<http://www.INASSAgroup.com.pe/>). The INASSA Group will now be known as NSF-INASSA, NSF-EnviroLab, and NSF-Servisane. The NSF-INASSA Group provides services across the seafood, fish meal, pharmaceutical products, drinking water, and mining sectors, employing more than 220 scientists, auditors, and environmental health professionals. . . . **MEGTEC Systems, Inc.** of De Pere, Wis., has acquired clean air technologies producer **TurboSonic Technologies, Inc.** It is now a subsidiary named MEGTEC TurboSonic Technologies, Inc. within MEGTEC’s Environment, Climate and Energy Group. The acquired company’s products include wet electro-

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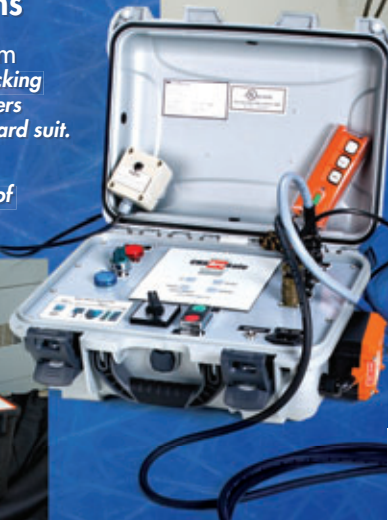
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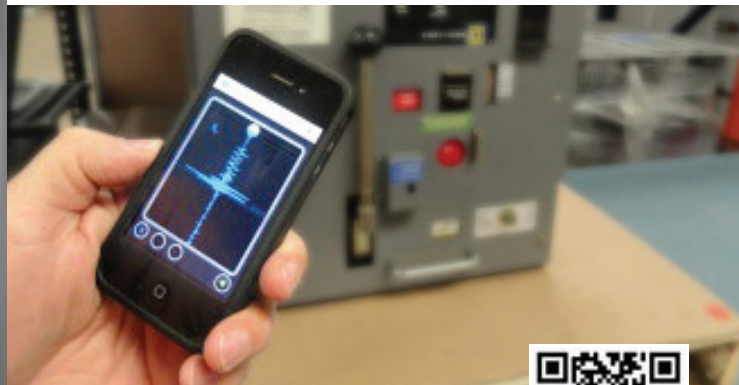
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static precipitator systems, semi-dry and wet scrubbers, and evaporative gas cooling systems. . . . The Finnish instrumentation manufacturer **Gasmet Technologies Oy** has acquired the share capital of **Ansyco GmbH** in Germany. Gasmet Technologies is one of the world's leading manufacturers of gas monitoring instruments and systems for industrial and environmental applications. Founded in 1989, Ansyco GmbH (Karlsruhe, Germany) has been a distributor of Gasmet products since 1993. The company employs 18 staff and in addition to Gasmet, Ansyco also represents other gas monitoring and detection equipment manufacturers such as Environnement SA (France), Geotechnical Instruments (UK), Perma Pure (USA) and Extrel (USA).

References & Resources

■ The Institute for Safety and Health Management (Yuma, Ariz., www.ISHM.org), which administers the Certified Safety and Health Manager (CSHM) certification and Associate Safety and Health Manager (ASHM) program, has developed a new certification program — the Certified Safety Management Practitioner (CSMP) program — to recognize employees whose duties include performing occupational safety and health management activities on either a part-time or a full-time basis.

The certification recognizes those who have attained a level of knowledge, training, and experience to manage a safety and health assignment competently and professionally, according to the organization. For more information, email info@ISHM.org or call 877-201-4053.

■ The Safety Equipment Institute (www.SElnet.org) announced the first certifications have been issued to NFPA 1992, *Standard on Liquid-Splash Protective Ensembles and Clothing for Hazardous Materials Emergencies, 2012 Edition* and to NFPA 1994, *Standard on Protective Ensembles for First Responders to CBRN Terrorism Incidents, 2012 Edition*.

The 2012 NFPA 1994 standard included an updated permeation resistance test method; the Man-In-Simulant Test (MIST) method was revised to include improvements to the test method, a revised slip resistance test, and removal of the Puncture Resistance Test 2, as well as the Impact and Compression Resistance Test. **OKS**

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Keeping a Firm Grasp on Proper Glove Use

Consider an ergonomic assessment. You may be surprised at the changes that can be easily made in positioning, workstation design, tool use and selection, and vibration control.

BY LINDA J. SHERRARD

It was a beautiful holiday office party, with great foods and drinks for everyone. At the end, as is usual, other affiliated department staffers came in as a courtesy — housekeepers, maintenance staff, and others. Any leftovers would be kept covered and nibbled on throughout the day by various staffers. I remember watching as several parked their housekeeping and maintenance service carts/belts in the hallway and served themselves food, opening covered containers while wearing the gloves used for cleaning, the same set of gloves they had been wearing while just cleaning bathrooms, working on toilets, floor moldings, etc.

Other employees removed their gloves, shook them off, and parked them in pockets or draped over their belts while serving themselves, without any additional hand hygiene I noticed. They then put on the same gloves when returning to their work duties.

I knew every employee had attended PPE and hand hygiene training and could easily answer questions on policy and training on gloves like a pro. And yet, in this situation, I was the one receiving the education: Training has meaning only if it is used! (Yes, all food items were quickly disposed of that day, and much retraining began for many surprised employees.)

No matter what type of work environment you have, if you carefully watch your employees without their realizing it, you will see a vast array of glove misuse that either spreads potentially deadly contamination or destroys the barrier protection of the glove itself, giving a false sense of security and endangering the employee. Employees cut/tear the fingertips out of gloves to improve dexterity while drawing blood or performing fine machine work; they reuse single-use gloves; they touch with gloved, contaminated hands other things such as patient beds, hideous crime scene evidence, cell phones, keys; they adjust their glasses, use tissues, eat and drink, put hands in pockets, or write with personal ink pens that they use later without cleaning. They wear gloves of the wrong size or wrong type for the job.

These are your employees, and thus *your program's failure*. Failure can mean a lot of things: increased worker's compensation costs, increased contamination (think of health care and MRSA, for example), damage to products, and lost production time. Increased liability if public exposures are discovered also can be costly.

Many facilities think product selection is the most important aspect of a well-functioning hand protection program. They line up colorful arrays of gloves or other needed hand protection items and associated tools for employees to use. These gurus believe their programs are outstanding, but they're wrong. The best glove in the world is only as successful as the person wearing it allows it to be. My best example of this is the hazardous waste technician who regularly removed his right glove by using his teeth to grip one of the glove's fingertips. (I thought the supervisor would faint.) Turns out the gloves ordered were too small, fitted tightly, and were difficult for a non-complaining employee to remove. Immediate work reassignment, retraining, and extensive health assessment/monitoring were implemented.

Consistency Issues with Hand Protection

Be honest: How consistent is correct glove use at your facility? Perhaps 35 percent? Maybe 70 percent? As safety, you need to know.

Get a firm grasp on your hand protection program. Start at the beginning and work forward to complete and consistent usage. Do your safety program homework now before being embarrassed by the injury figures, exposures, accident reports, claims, and corner office finger-pointing.

Do you know the actual history of hand protection/selection at your facility? How did your facility hand protection program develop? Typically, many years ago, a department manager or supervisor ordered some gloves and made them available to the employees, rather unceremoniously: "*Here, use these.*" Reorders are made. Then cost effectiveness comes into play, and often a cheaper type is substituted without knowing exactly how the exchange will work, but it saves money. Employees may then refuse to wear the new gloves or try to make do with the new item, whether it fits correctly or protects for the work being done or holds up to the process.

See where this is going? Do you manage your hand protection program, or does it abuse you? Start with the hazard or process. If gloves are being used, ask why and how long they have been used. Are reorders being done, and are the products actually being used? You

Cast a critical eye on supervisors to ensure they teach and show the correct procedures and not shortcuts.

do not want employees simply using gloves over contaminated or damaged skin; it defeats your primary purpose in hand protection.

Know what you need, and use what you buy. Review the injury history and the costs of the injuries. (Almost every facility has hand/finger injuries.) Glove misuse may also be a problem. Completely review the tasks being done and realistically assess the hazards. Conduct a hazard analysis based on your safety data sheets, contamination risks, barrier protection needs, and length of exposure. Talk with supervisors and then talk with employees, either one on one or in groups, for input. You'll be amazed at the information you learn — and possibly horrified at what goes on that you did not know about. Can the supervisor or department head explain to an inspector what glove is being used and why it was chosen? As safety, can you? And in an inspection situation, is this documented?

A Real Budget Proposal

Start by reviewing what is ordered by each department and how much is actually used. Track back several years, looking at process changes or other alterations, shift additions, etc. to know what is used and what is needed. Compare needed products to fluff purchases and know the costs in detail. Have more than one person making the final decisions. Often the budget manager tries to shave expenses by substituting a cheaper quality glove that does not meet the expectations or comfort needs of the employees.

Make compliance easy for the employee. Provide consistency in training, mentoring by supervisors, problem solving when needed, and availability of the right product for the job. If there's damage, offer unquestioned replacement. If the employee is intentionally damaging PPE, you will be able to track that, too. Look for the spikes in glove use, and to ensure compliance, check the trash for correctly removed gloves and the condition of the used PPE. Are you seeing used/damaged/orphan gloves in hallways, bathrooms, parking lots? Ask yourself whether there is additional exposure to others and what failed so that employees do not follow the policy and procedures. Cast a critical eye on supervisors to ensure they teach and show the correct procedures and not shortcuts.

Consider an ergonomic assessment. You may be surprised at the changes that can be easily made without a great deal of cost in positioning, workstation design, tool use and selection, and vibration control.

Training and Product Selection

Training for hand protection, including sanitation issues, is more than seat time snoozing through a video. You have to make sure the employees understand the issues and know what "bad" things can happen when they do not follow the correct procedure. Be realistic, be graphic, and make sure it applies to the work being done. Use appropriate training aids — from the "glowing" contamination trackers to damaged gloves, worker's compensation numbers, actual injuries on your site, and lasting disabilities.

Tailor the training to the audience and their education/language skill level. Make the training time exceptional, not just endurance.

HAND PROTECTION

Consider your work site or facility for consistent use of gloves on a daily basis. Watch your employees, listen to them, and make needed changes to your PPE program. The following checklist may help you evaluate it.

- ☐ **YES** ☐ **NO** As part of your general safety program, has your facility been comprehensively evaluated by a trained/knowledgeable safety professional for potential hazards requiring gloves for employee protection?
- ☐ **YES** ☐ **NO** Has an in-depth evaluation been done of injuries that were reported for trends or specific processes (or shifts) where more injuries occur?
- ☐ **YES** ☐ **NO** Are new chemicals or processes evaluated before implementation to ensure new hazards are avoided where possible?
- ☐ **YES** ☐ **NO** Are hand injuries/near misses discussed in your safety committee meetings? Are corrective measures implemented? Do you specifically discuss glove use/misuse?
- ☐ **YES** ☐ **NO** Was the specific need for PPE documented and were adequate gloves, knives, ergonomic hand tools, or other needed PPE items for hand safety ordered in correct sizes for all employees?
- ☐ **YES** ☐ **NO** Does your first aid kit include supplies for serious hand/finger injuries? Do first aid responders know to save any amputated part and how to treat a victim until medical attention is available?
- ☐ **YES** ☐ **NO** Are hazards or exposures that may occur on all shifts, processes, and equipment evaluated?
- ☐ **YES** ☐ **NO** Do supervisors document comments/complaints from employees on specific PPE for follow-up?
- ☐ **YES** ☐ **NO** Has the entire job site been evaluated for ergonomic issues? Have the recommended new equipment and hand tools been put into place?
- ☐ **YES** ☐ **NO** If gloves are used, are correct selection methods used and correct sizes and inventory maintained for all employees? Are employees trained on use and disposal?
- ☐ **YES** ☐ **NO** If a PPE item is to be reused (such as mesh gloves for meat cutting), are proper sanitation methods used consistently?
- ☐ **YES** ☐ **NO** Are PPE, hand tools, and working conditions inspected regularly for proper use, replacement, and signs of excessive wear (such as frayed grips, torn PPE, etc.)?

No checklist is a substitute for a comprehensive safety program, but it serves as an additional tool in reviewing compliance.

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We have all seen training classes where the employees sat dozing; no one wins in this scenario.

Have available and ready to use all needed “additions” to ensure complete hand hygiene. Wipes, rubs, rinses, foams, and sinks all add value to your hand hygiene program, but only if they’re used. Employees must understand and be trained to automatic behavior in correct hand-washing techniques and frequency for the job being done. Provide moisturizers where needed so that employees will wear the products provided as intended without the added skin allergies/dryness that comes with improved hand hygiene.

Begin your product selection with a list, then review types. If you do not feel you can make the right selections, call the experts — manufacturers, distributors, and independent consultants will be happy to assist, send samples, or show their PPE and help you assess what is needed. Tell them upfront about your budget restrictions and ask for all they can offer at the right price. You will be surprised by what can be provided.

Make sure you have sizes needed, and keep them in stock. Dangers abound for employees trying to use misfitting PPE. It causes loss of dexterity and dropped tools, and it increases chances of injury by aggravation through hand fatigue. Every comfort you can offer an employee wearing PPE helps.

Increasing Compliance

Be honest with employees about what is expected from them and why, honest with management about obtaining your set goals, and

very honest with yourself on your ability to get the program to work. It takes time, patience, and commitment on your part and a willingness by employees to be safe on the job. Compliance is a long-term process, not an overnight event. Safety compliance is both a challenge and an opportunity.

Follow up — over and over. Keep the message on point, but constantly update your efforts, methods, and review. It will seem never-ending with the regular turnover of employees, videos, posters, mentoring, training and budget meetings. Done correctly, your efforts will be rewarded, but it takes positive leadership and time to implement.

The real message for a successful program: Consistent/convenient/compliant. You have to ensure consistency in the program administration and training, convenient product use and availability, and compliance with use by supervisors and employees alike. As the facility safety professional, you have to make sure all of the elements maintain commitment from management and employees. You are the cheerleader, and you have to keep pushing the goals a little at a time. Few companies can demand immediate compliance and obtain this. Win your employees’ trust and you can be extremely successful, one step at a time. **OHS**

Linda J. Sherrard, MS, CSP, is Safety Consultant II for the Central Prison Healthcare Complex with the North Carolina Department of Public Safety in Raleigh, N.C., and is the former technical editor of OHS&S. She can be reached at ljohnsonsherrard@nc.rr.com.

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WHY IS SKIN CARE IMPORTANT IN AN INDUSTRIAL ENVIRONMENT?

by Tim Wirostek

Faced with myriad pressing decisions on staffing, finance, operations, and production, it can be easy for industrial-sector business operators to think of skin care as a trivial issue and a commodity buy, or for it to fall off their radar screens completely.

A closer examination of the potential impact of skin disease in the workplace shows why failing to address workplace skin care is a big mistake. According to the U.S. Bureau of Labor Statistics, 10-15 percent of all occupational illness is caused by skin disease.

Employees in any industrial setting are exposed to a variety of soilings, potential irritants, temperature swings, and, at times, difficult working conditions that can lead to visible skin problems ranging from red, sore, chapped skin to serious instances of occupational dermatitis.

The scope of the problem:

- Skin disease is the most common of all workplace illnesses.
- Recent studies show up to 40 percent of workers will

suffer skin issues at some point in their working lives.

- More than half of working time lost through industrial diseases is due to dermatitis.
- It has been found that 75 percent of patients with occupational dermatitis developed chronic skin disease.
- Many cases of dermatitis will result in an average of two months away from work. If it is not treated quickly and effectively, more serious long-term problems may develop.

The Impact on Employers

The cost of these problems is significant and is widely accepted to be under-reported. The biggest problems resulting from skin disease for employers are:

- Increased absenteeism
- Reduced productivity
- Compensation and compliance issues
- Low staff morale
- Possible health and safety or OSHA violations

The prime responsibility for the prevention of occupational skin disease lies with the employer. Employers have a “duty of care” to ensure they provide a safe working environment and to carry out regular safety assessments for their employees.



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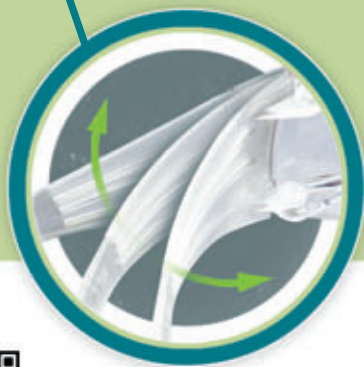


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By taking the right preventative steps to minimize contact with damaging agents and adopting an appropriate skin safety regimen, the risk of occupational dermatitis can be reduced. We have worked closely with organizations of all sizes and industries to implement hand hygiene products and systems to help prevent occupational dermatitis.

Getting Started

Here are some steps your company can take now to mitigate current problems and avoid future ones:

- Conduct an assessment of current work practices and include substances that may represent a danger to the skin, including harsh chemicals or abrasive materials.
- Evaluate and launch new products, processes, working practices, or personal protective equipment, as required.
- Introduce a Skin Safety Regimen that addresses the

need to protect, cleanse, sanitize, and restore skin.

- Institute staff training and communication to increase awareness and encourage compliance.

- Review and monitor the situation on an ongoing basis.

The risk of not addressing this is great, as is the potential reward. After years of working with employers, we've learned that any investment made in effective skin care flows right back to the bottom line many times over. **OKS**

Tom Wirostek is vice president of marketing at Deb Group, a leading away-from-home skin care company. Deb products are available in at least 100 countries, and it is estimated that more than 40 million people use Deb's products every day in workplaces and public facilities. In his present role, he works with customers across a wide range of industries to provide innovative and market-leading skin care programs that improve employee health and safety and environmental impact while reducing costs. With nearly 30 years of marketing experience, He holds a BA in marketing from Michigan State University and an MBA from Xavier University.

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CIRCLE 27 ON CARD

Challenges to Leather Glove Quality

With higher prices likely to be unavoidable in the long run, the key is to stick with brands one trusts.

BY JIMMY WU



REMO INDUSTRIES

Leather industrial glove prices have been trending upward and will likely continue to rise for the foreseeable future. It is not entirely surprising if one thinks of leather, the primary material, as just another commodity tied to global consumption. In truth, several key, nuanced factors have driven supply and demand in this industry during the past few years and will continue to do so, with strong implications for those who depend on leather hand protection.

In recession years, one way people cut back is by substituting more expensive food items, such as beef, with more affordable ones such as pork and chicken. This was exactly the case after 2008, when fewer cattle were being slaughtered, leaving tanneries to complain about the squeeze in cowhide supply. The result was a counterintuitive hike in cowhide leather prices at a time when global economies were markedly soft. Ironically, pigskin prices also spiked, with farmers cashing in on higher pork prices before the hides matured to sufficient thicknesses for leather gloves. Some farmers bypassed the hassle of harvesting hides at all, reducing hides further for tanneries.

The larger dynamics of economic globalization will determine the future price trajectory of industrial leather gloves. To begin with, leather for industrial use is in an especially difficult position. Leather shoes and handbags often sell for many times that of industrial leather gloves, giving them priority in choosing leathers. In normal times, these manufacturers stuck with the higher-grade grain leather selections, while industrial glove makers were content with cosmetically imperfect grain and split leather pieces. But it is

different today. As with many industries, not only are times changing on the whims of the new global marketplace, but also at the speed of new technology that sometimes disrupts old business models.

New manufacturing techniques are already in place that can transform lower-grade split leathers into first-class top-grain pieces. The magic starts by first shaving off cosmetic imperfections. A laminate of the appropriate color and texture is then heat-sealed onto the genuine leather. Finally, a grain pattern is embossed on the surface, resulting in what looks like a perfect piece of natural grain leather.

Footwear and handbag companies, typically retailing products for \$85 and much more, have been quite happy to purchase split leathers aggressively for this profitable transformation. Industrial glove makers, with no intention of using synthetic laminates for their products that list for about \$15 per pair, cannot afford to outbid other industries for the leather that was until recently reserved for them.

Higher labor costs alone are a particularly pronounced problem for producing industrial gloves.

Global Economic Trends

As capitalistic models are being adopted in more parts of the world, those same free-market principles also are increasing the costs of goods produced in those countries. Business and manufacturing growth have touched off economic booms in emerging nations and fueled the growth of consumers with spending power. Large countries that have not had significant consumer economies in modern times are now crossing that threshold in a big way, with hundreds of millions of workers-cum-consumers. When workers earn more, they also tend to spend more on food, clothing, and other goods and services. That kind of market power exploding online increases demand for products such as leather goods and raises expectations for wage increases.

Higher labor costs alone are a particularly pronounced problem for producing industrial gloves. The manufacturing process is labor-intensive as well as unexciting, requiring higher wages to maintain an adequate workforce. Even the expectation of higher living standards has a cost. For instance, manufacturing countries with emerging economies are starting to adopt anti-pollution measures similar to the ones the United States has enjoyed for generations in order to protect their own lakes and streams. Tanneries complying with these regulations face higher operating costs, while non-compliant tanneries shut down and



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CIRCLE 39 ON CARD



Chances are, today's sedans and SUVs are upholstered in genuine leather — about two cows' worth each.

still others may not open at all. This may affect the supply of leather in the form of a bottleneck.

The demand side is no less dramatic. Car companies from Toyota to GM have rebounded dramatically in 2012. But when was the last time you saw a new car roll off an assembly line with vinyl or velour seats? Chances are, today's sedans and SUVs are upholstered in genuine leather — about

two cows' worth each. Along those same lines, demand for leather sporting and fashion shoes, handbags, and other leather goods also have increased dramatically with higher aggregate global consumption. Add to that the slowly recovering U.S. economy and the improving global situation about a year or two behind the U.S. cycle, and stronger demand for leather may yet have more legs for years to come.

End Users Get What They Pay For

So what can the industrial leather glove consumer expect? With less availability and a smaller selection of leather for this industry, quality itself may suffer unless prices move up. Faced with increased labor and leather costs on the one hand and a customer base not yet aware or accepting of global market prices on the other, some manufacturers may be tempted to take short-term measures. Some factories might substitute with thinner or lower-quality leathers; use less time or cheaper chemicals in the tanning process, resulting in less softness; or even reduce the length of gloves to allay significant price movements. If these actions are taken, end users can expect poor fit, reduced comfort, less durability, and even decreased productivity to be some of the consequences.

But for all the challenges, it is difficult to replace that special combination of natural feel, reliable durability, and traditional protection that only genuine leather can provide.

How should industrial leather glove users weather such a storm? With higher prices likely to be unavoidable in the long run, the key is to stick with brands one trusts. Advertised brands have a reputation to protect and are less likely to cut corners. With any significant market share, chances are they also know how to control quality and deliver on their promises. The caveat here is to understand that leather is an organic material that varies by each animal and each piece. There will always be some quality variations, especially in industrial leathers.

Finally, industrial leather glove wearers will get what they pay for. By voting with their dollars, they signal what quality level of hand protection they want. In the long run, manufacturers will always obey the market.

If you need more information on leather, many of the industrial leather glove manufacturer websites are excellent sources of knowledge that will help you make better product decisions. **OKS**

Jimmy Wu is the Vice President of Marketing for Revco Industries, the manufacturer of Black Stallion® gloves. He has over 18 years of experience working with factories and tanneries for leather gloves and protective garments.



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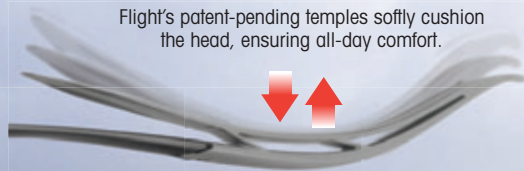
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Solving a Truck Loading Challenge

Bristol Metals explored several solutions and found a way to maintain an effective loading process while creating a safer work environment.

BY KEVIN DUHAMEL



GORBEL INC.

Each monorail uses dual track, allowing two workers to pass one another safely without disconnecting the lanyard from their harness.

Mike Vance does not wear a cape to work. He's not from a planet with a red sun, and he's unable to leap buildings in a single bound. He's never considered himself a superhero by any means. Yet, as director of engineering at Bristol Metals in Tennessee, you could call him a Man of Steel. He also bears a superhero's burden, given that his job is to keep people safe.

"We're a manufacturer of stainless steel pipe, and all day we're loading flatbed trucks with multiple stacks of the pipe for shipment," said Vance. "We've been loading trucks at this facility for 50 years, and the risk is certainly there for someone to fall off of the truck while it's being loaded. There have been incidents where people have fallen. Nobody has been seriously injured, but the risk is there."

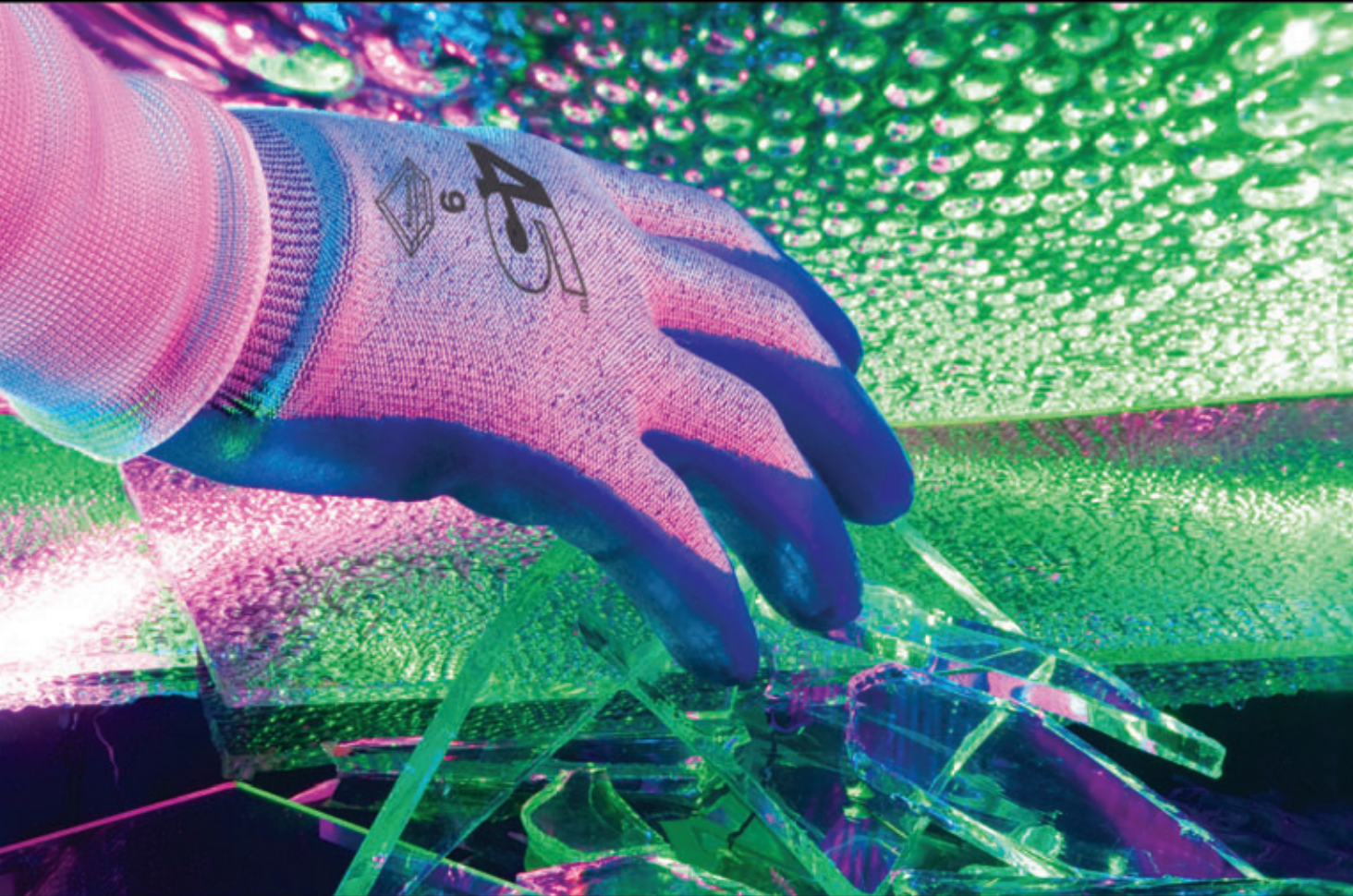
Having stepped up their safety program in recent years, Vance and his safety team took a proactive look at health and safety risks at the facility, and identified the truck loading as the highest safety risk for their employees. Under OSHA's requirements, all workers must have some form of fall protection while on the bed of the trucks. OSHA requires fall protection for employees who work at elevation, defined as 4 feet per the OSHA 1910 standard for general industry and 6 feet per OSHA 1926 construction standards.

The company explored several solutions to maintain an effective loading process while creating a safer work environment.

"We looked into a new building that would have overhead cranes to load the trucks, but that didn't change anything for the workers, who would still need to be tied off. We talked about using man-lifts to reach over and keep the men off the truck, but after studying the situation, it would be very difficult to effectively load unless they can actually be on the truck," Vance said.

Their solution? Two freestanding fall protection systems. These rigid rail fall protection systems cost less than a new building and still allowed their workers to remain on the truck. The primary system features two cantilevered monorails, which enables two flatbeds to be loaded in the same area simultaneously. Each monorail uses dual track, allowing two workers to pass one another safely without disconnecting the lanyard from their harness. A second system featured a single cantilevered monorail, also with the dual track. **OKS**

Kevin Duhamel, Gorbelt Tether Track™ Product Manager, is a North American product manager with Gorbelt Inc. He has more than 15 years of safety industry experience and expertise and has specialized in fall protection since 2008. He is a certified fall protection-competent trainer and inspector.



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'I Fell Off the Roof Today'

Those in the construction industry who need to hear the “Safety Pays, Falls Cost” message most are often the ones who are hardest to reach.

BY PETE STAFFORD



We recently received a video so remarkable that it deserves to be shared with everyone who walks onto a construction site. In “I fell off the roof today,” posted on YouTube, a roofer identified only as “Isidro” shares a harrowing experience. While working on the roof of a three-story, stick-built residential project, Isidro lost his balance.

But not his life. Fortunately, his employer had supplied suitable fall protection gear, and Isidro had donned it properly. “The first thing I did on the roof is install an anchor above,” he explained. “I already had my harness on. I had everything on, everything in place.” His fall over the roof’s edge was arrested almost immediately, and his co-workers freed him before he suffered any lasting effects. Still photographs

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Two-thirds of fatal falls from roofs were suffered by employees of firms reporting 10 or fewer employees.

presented in the video show Isidro dangling after the fall, shocked but unharmed, driving the point home.

"You will never see me on a site untied," Isidro concludes. "We all have family. So protect yourself."

The Campaign to Prevent Falls – Year Two

People share such stories with me frequently because, one year ago, as envisioned by the NORA Construction Sector Council, CPWR — The Center for Construction Research and Training joined the National Institute for Occupational Safety and Health and the Occupational Safety and Health Administration to launch a nationwide initiative to prevent fatal falls in construction. Secretary of Labor Hilda Solis announced the Campaign to Prevent Falls — Falls Cost, Safety Pays at a widely attended Workers' Memorial Day observance and summit in Los Angeles in April 2012.

It couldn't have happened a moment too soon. Injuries and deaths from falls remain stubbornly high in the building trades. Construction workers represent only 8 percent of the American workforce but suffer 22 percent of all workplace fatalities, with falls as the leading cause. Almost *every working day* somewhere in the United States, a man or woman employed in the building industry dies in a fatal fall on the job. *Every year* more than 10,000 construction workers experience serious, even life-changing, injuries from falls.

As grim as those statistics were, upon launching the campaign we learned that a large cross-section of the industry shared our concerns. Dozens of leading contractor associations, labor unions, safety consultants, and others signed on as partners, hosting events and getting the word out. Under the slogan "Safety Pays, Falls Cost," we spread the message through construction expos, union events, and radio broadcasts.

Together we built a website, www.stopconstructionfalls.com, that serves as a home base for the campaign. There, the Campaign to Prevent Falls in Construction offers research reports and toolbox talks, instructional videos, and news of the campaign. You can click on a map to learn about fatal construction falls in your community. And if you are responsible for a construction project, you can learn about the latest fall prevention strategies, techniques, and tools.

"The campaign has had a wider level of support and participation than we imagined. We still have work to do to get the message out, but we have reason to be pleased with how well the campaign has been going," said Dr. Christine Branche of NIOSH.

Not All Are Equally at Risk

We must admit, however, that not all workers are equally at risk. The large commercial contractors, labor organizations, and enlightened project owners who responded first to the call were often those already doing much to protect workers on the job. Conversely, those who need to hear this message most are often the ones who are hardest to reach.

CPWR research bears this out. With generous support from

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Don't take any chances. Protect yourself from a fall.

Here is what you can do:

1. Wear a full body harness and make sure it is snug. A belt is not going to protect you.
2. Connect the harness to a lifeline or lanyard. It should be long enough to do your work but not too long so it will stop you from hitting the ground.
3. Connect the lifeline to an anchor on the roof. The anchor should be nailed in or screwed into a rafter according to manufacturers' instructions. Make sure it is in securely so it will not come out if you fall.
4. Try to keep the roof clear of obstacles that might cause a slip or trip.
5. Plan the work to avoid tangled lines.
6. Make sure ladders are secure (top and bottom), at the proper angle (1"–4" ratio), on firm footing and extend 3' beyond the roof edge to make it easy to get on and off.
7. Keep three points of contact on the ladder when climbing and always face the ladder going up and down.
8. Never carry anything in your hands when climbing a ladder. Use a hoist to get materials and tools up and down.



**Falls can be
prevented by simple
precautions.**

More information on preventing falls is on the website
www.stopconstructionfalls.com.



This flier is a great handout that gives simple directions for working safely on a roof and using fall protection equipment. You can find this flier, and more training materials, on the website www.StopConstructionFalls.com. Here is a link to the PDF of this flier: <http://stopconstructionfalls.com/wp-content/uploads/2012/09/Rooftop-flier.pdf>

NIOSH, Sue Dong and the CPWR Data Center led a research team to study fatal falls from roofs in the U.S. construction industry over an 18-year period, with a special focus on 2003-2009. "Fatal falls from roofs among U.S. construction workers" appeared in the February *Journal of Safety Research*, and the article can help us grasp the size and specifics of the problem. Using data from the Census of Fatal Occupational Injuries (Bureau of Labor Statistics) and the Current Population Survey (Bureau of the Census), the authors identified several groups at particular risk, among them:

- **Employees of small construction firms.** Two-thirds of fatal falls from roofs were suffered by employees of firms reporting 10 or fewer employees.

- **Hispanics.** Hispanic construction workers have a 54 percent higher risk of experiencing a fatal fall from a roof than non-Hispanics.

- **Residential construction workers.** While residential building sites account for 18 percent of construction occupational fatalities overall, they witness more than a third of all fatal roof falls.

If we want to put a serious dent in the number of needless deaths and injuries, we need to get to these workers — and especially to the contractors who employ them.

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If we want to put a serious dent in the number of needless deaths and injuries, we need to get to the workers identified as at particular risk — and especially to the contractors who employ them.

Resources for Residential Contractors

That's why we've steadily added resources to www.stopconstructionfalls.com with such contractors in mind. The campaign's main message to contractors — “Plan. Provide. Train.” — is applicable to firms of every size and trade.

- **PLAN** ahead to get the job done safely.
- **PROVIDE** the right equipment.
- **TRAIN** everyone to use the equipment safely.

While the large commercial or industrial construction firm may have a safety department with human and material resources, the small contractor struggling with tight margins needs all the help he or she can get. The website can help. Such small contractors can stop by our page offering resources on roof falls; once there, they can pick up a Fall Prevention Fact Sheet published in English and Spanish (and for that matter, Polish and Russian!) or a well-illustrated handout showing how to properly tie off while working on a roof. Under “ladders” they can view the much-in-demand Don't

Fall for It! instructional video on ladder safety or a PowerPoint presentation useful for training site supervisors in ladder safety. And if they are working on building exteriors, I hope they won't overlook the useful “scaffold checklist” and other resources on scaffold safety. These are but a few of the free materials available online for anyone with an Internet connection and a printer.

Construction contractors, trades workers, and occupational safety professionals who don't want to stand on the sidelines are invited to join us in this campaign to save lives. On April 10, I will join Dr. Branche as well as Jim Maddux from the OSHA Directorate of Construction to host an *OH&S* webinar on the initiative. Participants can learn about the campaign's first year and how they can partner with us to make these tragedies a thing of the past. I hope you will be there to help us *stop construction falls*. **OHS**

Pete Stafford is executive director of CPWR — The Center for Construction Research and Training (www.cpwrt.com). This column was provided by CPWR, which is the research and training arm of the BCTD. CPWR's research is made possible through a cooperative agreement with the National Institute for Occupational Safety and Health, NIOSH (OH009762). The contents of this column are solely the responsibility of the author and do not necessarily represent the official views of NIOSH.

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Proper Foot Protection Made Simple

Consider these important factors for safety and comfort.

BY ROGER HUARD



Long hours on your feet without the appropriate footwear can equate to a miserable experience and, more importantly, a dangerous one. When you're selecting your next pair of footwear or building guidelines for your business, there are key components to consider that can make a significant difference in the safety and comfort of the footwear.

Established Guidelines and Standards

The Occupational Safety and Health Administration specifies that employers ensure each affected employee uses protective footwear when working in areas where there is a danger of foot injuries due to falling or rolling objects or objects piercing the sole, and also where an employee's feet may be exposed to electrical hazards. As an employer, clearly communicating guidelines about safety footwear will help ensure proper footwear is used. As an employee, making sure you fully understand the requirements is the first step.

Toe Protection and Metatarsal Guards

Toe protection is one of the key elements of foot protection. The American Society for Testing and Materials (ASTM) F2413-11 Standard Specification for Per-

formance Requirements for Protective (Safety) Toe Cap Footwear is the standard safety-toe certification.

You will often see the standard listed as: ASTM F2413-11 M I/75 C/75

What does this mean? The letter "M" or "F" identifies the gender (male or female) for which the footwear is intended. The "I" stands for impact resistance (if something heavy were suddenly dropped on the foot), and the number signifies the impact resistance rating (75 foot-pounds). The "C" represents compression resistance (if something were to roll over or crush the foot) and the compression resistance rating (75, which represents 2,500 pounds of pressure).

Safety toe caps are commonly available in steel, aluminum alloy, and composite materials. Steel is the most common and time-tested material in toe protection. It is affordable and strong, and there are few materials that can meet or exceed the strength, resilience, and elasticity of steel. However, caps thermo-formed from resins and fiberglass composites are becoming more and more popular. They meet the same safety standards and provide the same level of protection as steel with some notable benefits: They are lighter in weight, they do

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Rubber offers excellent performance in terms of abrasion and oil- and slip-resistant qualities that are needed in a work boot where durability and performance are critical.

not conduct heat or cold in extreme temperatures, and they are non-metallic (allowing for easier passage through metal detectors, etc.) However, composite toe caps do need to be slightly bigger and thicker than steel toe caps in order to offer the same protection, so they can make boots look bigger and fit differently to some users.

Metatarsal guards take the protection to the next level. They cover the front of the

foot and help to prevent or reduce the severity of an injury to the metatarsal and toes. You will see metatarsal guards identified as Mt/75, where the metatarsal guard and the rating (75 foot-pounds) are identified.

Other Rated Components

Other common ratings include electrical hazard (EH), conductive (CD) properties, puncture resistance (PR) properties, and electric static dissipative (ESD) properties.

EH stands for electrical hazard. Electrical hazard footwear is made with insulative electrical shock-resistant outsoles and materials. It's designed to provide secondary protection against contact with live electrical circuits and electrical conductors, parts, or machinery. Footwear with an electrical hazard designation must be able to withstand 18,000 volts at 60 hertz for one minute with no current flow in excess of 1.0 milliamperes, in dry conditions.

Conductive footwear helps to protect the wearer in environments where static electricity accumulation is a potential hazard. Footwear with a CD rating is designed to dissipate static electricity from the body to the ground. The electrical resistance should range from zero to 500,000 ohms.

Closely related is static dissipative footwear, which helps reduce an accumulation of static electricity by conducting body charge to the ground.

Puncture-resistant footwear helps protect against injury that could be caused by sharp objects that could penetrate the outsole. The puncture resistance must be built into the shoe during the manufacturing process. This is often executed with a puncture-resistant plate that is built into the midsole of the shoe. Puncture-resistant footwear must be able to endure at least a 270-pound force and also show no sign of cracking after 1.5 million flexes, to ensure long-lasting protection. If the puncture-resistant midsole or insole is metal, it also must pass a corrosion resistance test.

Comfort and Performance Features

In addition to safety standards, there are numerous components of work boots that impact their comfort and functionality, including outsole materials, upper materials, waterproof features, insulation value, and construction type.

Outsole Material

Genuine rubber is the most commonly used material, and the reason is simple enough: Rubber offers excellent performance in terms of abrasion and oil- and slip-resistant qualities that are needed in a work boot where durability and performance are critical.

The main advantage of newer materials such as TPU (thermoplastic polyurethane), PU (polyurethane), and EVA (Ethylene-Vinyl-Acetate) is that they are lighter in weight, more flexible, and, in the

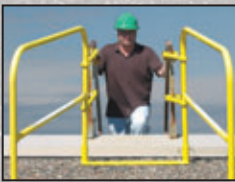
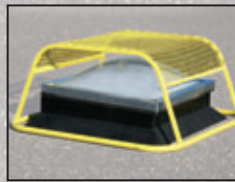


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A waterproof membrane guarantees that feet stay dry in wet environments while maintaining breathability.

case of PU and EVA, provide greater cushioning. Many modern work boots offer combinations of these synthetic materials and rubber. Advances in chemistry and chemical engineering also have allowed boot developers to fine-tune the performance characteristics of outsoles so that there is a more focused match between outsole performance and function.

Upper Material

Synthetic materials were rarely found in work boots as recently as 20 years ago. However, as people move toward work boots that look and feel more like athletic footwear, the performance and value of synthetics has begun to challenge the dominance of leather in work boots. Made from a constantly increasing variety of man-made fibers and resins, most synthetic materials (including synthetically enhanced leather) are lightweight, durable, and can be formulated to be waterproof.

Although synthetics are gaining popularity, leather is still the tried and true upper material found in many work boots. Leather is breathable and a good choice for people who are on their feet for hours at a time. Leather provides a customized fit for each individual because leather molds to the foot with wear, and leather is by nature quite durable and can be treated with a waterproof compound for additional performance.

Waterproof Components

In addition to waterproof uppers — whether it's leather, synthetic, or a combination of the two — there are components that can supplement the waterproof nature of a work boot. A waterproof membrane guarantees that feet stay dry in wet environments while maintaining breathability.

Insulation

Insulation is an important consideration for many people around the country who work outside, especially in wet and cold environments. Insulation typically ranges from 200 grams for light warmth up to 1200 grams intended for the coldest, harshest conditions.

Construction

There are many different construction methods used in boot-making, and the

manner in which boots are constructed makes a difference in the weight, flexibility, and longevity of a boot. Goodyear Welt is time-tested and durable construction that has been used for many years. It provides durability for footwear because the upper and inner sole are stitched together with a strip or "welt." In the next step, a firm midsole is stitched to the welt. Finally, the sole is cemented (and sometimes also stitched for extra security) to the midsole. This process allows boots to be re-soled or repaired, thus extending the longevity of the footwear.

A modern and popular type of construction is cement, where the boot's outsole and midsole are cemented permanently to the upper. This construction is lightweight and flexible. Direct-Attach (or Injection) is a boot construction where the

sole material is permanently and chemically fused or attached to the upper. This construction is very lightweight and is generally the most durable and flexible type construction. It also has the added benefit of being watertight.

Finally, there is opanka construction (or side stitch), where an upper is directly sewn to the sole. This unique construction is achieved by hand-sewing the upper, sock lining, and outsole in a single process, delivering comfort and flexibility. **OHS**

Roger Huard is the vice president of Product Development for Wolverine, a company dedicated to the design of innovative work footwear with superior comfort and durability for more than a century. Today, Wolverine offers a full line of footwear, apparel, and accessories for work, casual and rugged outdoor lifestyles. For more information, visit wolverine.com.

FOOT PROTECTION REQUIREMENTS IN BRITAIN

As in the United States, construction workers in the United Kingdom are expected to wear protective footwear while on site and doing heavy work. Steel or composite toe caps for protecting against dropped objects and crushing injuries are required for workers who may be exposed to those hazards.

Britain's Health and Safety Executive reiterated in February 2013 that employers must provide a basic standard of safety footwear, and workers do not have to pay for it "so long as you look after it and make it last a reasonable time."

The agency recommends that UK construction workers ensure footwear and any other PPE they buy is 'CE' marked and complies with the requirements of the Personal Protective Equipment Regulations 2002.

The regulations define PPE as "all equipment (including clothing affording protection against the weather) which is intended to be worn or held by a person at work and which protects him against one or more risks to his health or safety." This specifically includes hard hats, gloves, eyewear, high-visibility clothing, safety footwear, and fall protection equipment. The regulations do not cover hearing protection or respiratory protection for most work situations because they are covered by other regulations.

The regulations require that PPE:

- is properly assessed before use to ensure it is suitable;
- is maintained and stored properly;
- is provided with instructions on how to use it safely; and
- is used correctly by employees.

"An employer cannot ask for money from an employee for PPE, whether it is returnable or not. This includes agency workers if they are legally regarded as your employees," HSE's guide to the regulations states. "If employment has been terminated and the employee keeps the PPE without the employer's permission, then, as long as it has been made clear in the contract of employment, the employer may be able to deduct the cost of the replacement from any wages owed."

For more information, visit <http://www.hse.gov.uk/>.

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CIRCLE 16 ON CARD



Testing a Better Recognition Tool

Can we reward workplace safety without discouraging accident reports? Our research points a way forward.

BY MIA GOLDWASSER, EMILY SPARER, AND JACK DENNERLEIN



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Incentive programs that reward workers for avoiding accidents and injuries have been a mainstay of occupational health and safety programs in construction and many other industries for years. Employers offer free lunches, raffles, and prizes to workers when their department, factory, or construction site achieves a set number of days without a workplace injury. These programs are attractive because counting injury-free days offers a quick and easy way to measure safety performance and explain the results to workers. However, injury-based incentive programs have recently come under fire from OSHA — and for good reason.

Rewarding low recorded injury rates and disqualifying individual workers or an entire group from receiving a reward when an injury occurs can lead to a reduction in injury reporting instead of a reduction in actual injuries. The prospect of a reward, after all, creates a material incentive for the workforce to conceal accidents and injuries in the workplace. This not only creates a false measure of the safety of work environment, but also prevents all parties involved from identifying and fixing real problems in the work environment or safety culture. The March 2012 OSHA directive “Employer Safety Incentive and Disincentive Policies and Practices” drew the line on these programs:

“Incentive programs that discourage employees from reporting their injuries are problematic because, under section 11(c) [of the Occupational Safety and Health Act], an employer may not ‘in any manner discriminate’ against an employee because the employee exercises a protected right, such as the right to report an injury. . . . If an employee of a firm with a safety incentive program reports an injury, the employee, or the employee’s entire work group, will be disqualified from receiving the incentive, which could be considered unlawful discrimination.”

Yet injury-based incentive programs are still all too common. In a recent study by Duke University’s Hester Lipscomb, 58 percent of carpenter apprentices reported some form of an injury-based incentive program — or a disincentive program tied to reported injuries — on their current work site. Workers expressed a fear of reprisal at these sites, should an injury be reported. And the problem of underreporting in the industry was a real one: A majority of workers said that injuries were “rarely,” “never,” or only “sometimes” reported on their current job sites. The study provides compelling evidence of negative consequences when work site programs discipline workers for injuries and accidents.

A More Accurate Reflection of Site Safety

Our research team at the Harvard School of Public Health and Northeastern University understands that communicating safety performance on-site and recognizing safe work practices are important goals and are critical to improving site safety culture and reducing injury rates. As a result, with support from CPWR — The Center for Construction Research and Training, we have been designing and testing a novel safety communication and recognition program called “B-SAFE: Building Safety for Everyone.” B-SAFE provides an infrastructure to recognize workers for working safely and reducing job-related hazards *before* an accident happens.

At the heart of the B-SAFE program is data from routine safety inspections to evaluate the physical working conditions and practices of a site. These data provide a snapshot of safety performance before an incident occurs — looking for “leading indicators” rather than reading “lagging indicators” such as accident reports. Safety managers record safe and unsafe observations with an easy-to-use software program. The observations are then weighted to generate an overall site safety performance score (the percentage of safe observations out of the total observations).

Unsafe observations are weighted by risk severity (low, medium, high, life-threatening), with the higher

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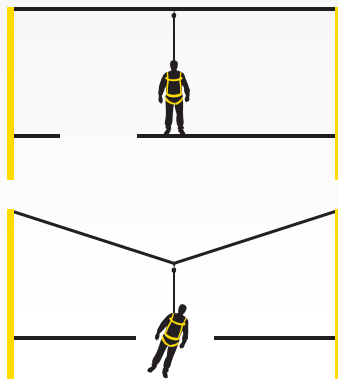
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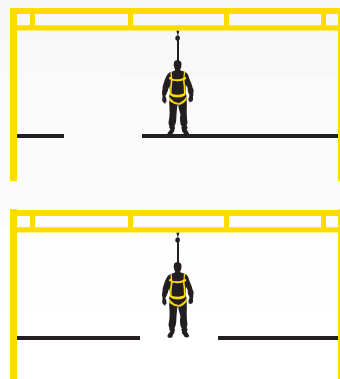
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severity items deducting greater values. Safe observations are weighted by hazard category (e.g., confined space, housekeeping, electrical safety, fall protection), with work practices protecting against severe injury risks assigned higher point values. The weights help provide a more accurate reflection of the site's safety, putting more emphasis on safety management systems than on the simple use of PPE.

Regular communication of these safety performance scores to foremen and workers employed by each contractor or subcontractor on the site drives the B-SAFE program. Foremen receive a weekly summary report of all safe and unsafe observations recorded for their company and are encouraged to discuss the report with their crews. Workers can read the whole-site inspection score on centrally located on-site posters where the scores are tracked and displayed. If and when the site safety performance score exceeds a pre-determined inspection threshold, the whole site is recognized for working safely with a free lunch and a raffle for a high-value item (for our urban work sites, the prize has been a cher-



ished one-month parking spot in a nearby garage). Hence, the B-SAFE program emphasizes the role of communication in maintaining safe working conditions and practices through providing constant feedback to workers and foremen. It also relies on positive reinforcement, regularly recognizing workers for their role in reducing hazards on the work site.

To date, we have partnered with five general contractors in the Boston area to

implement B-SAFE and evaluate its effect on site safety. We are still collecting data and are analyzing the program's full impact, but our experience to date has been very positive. On the commercial construction sites where we have tested the B-SAFE program, workers and management noted an increase in cooperation and safety awareness. "The key ingredient of this [B-Safe] program is that it promotes teamwork," said one site superintendent.



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- ☐ Fatigue
- ☐ Complacency

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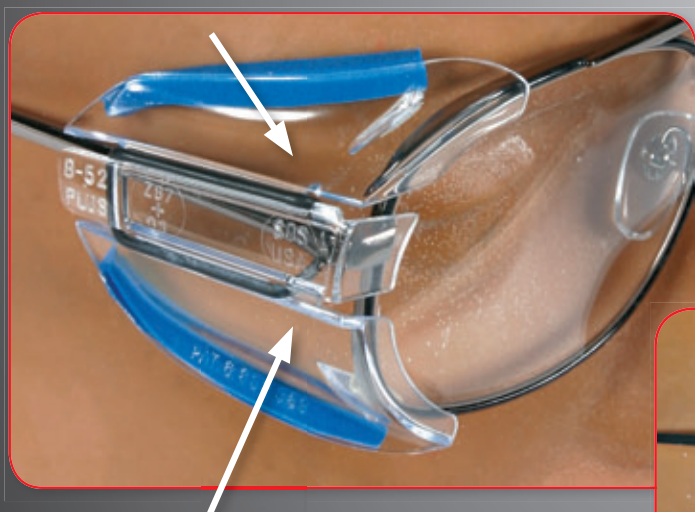
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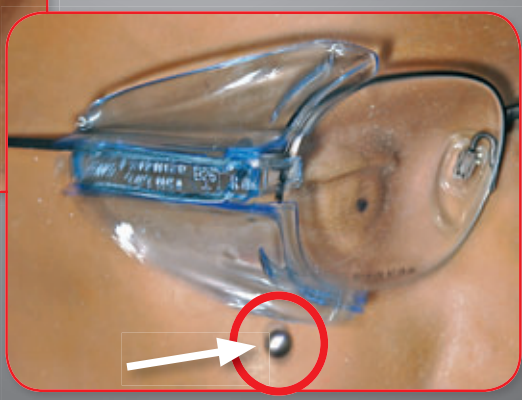
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Workers who participated in the program also noticed increased interaction among trades as they sought to collectively boost their site scores. One worker noted, "The trades were working together with the B-SAFE program, and other trades were watching out for everyone else. Normally they would never do that, but now I see talking amongst the trades — this came from the program." Another commented, "B-SAFE absolutely affected safety conditions. The awareness has gone way up. The job became a lot cleaner, there were a lot less tripping hazards, and I would say friendlier."

Workers also have reported that B-SAFE has improved communication between workers and management. "It helps you be able to bring safety issues to their [management's] attention. Before, if there was a safety issue, you'd stay away from it and keep your mouth shut. But they want you to be safe. It makes you more of a participant."

Next Steps

The B-SAFE program has more to do. Once we complete our current testing of the system, we need to determine how the program works when implemented by a contractor without the support of our research team. As part of that effort, our team is developing an online version of the program that will provide all of the materials and information necessary for owners and general contractors to implement B-SAFE on their own work sites.

Safety management systems are vital to the reduction of injuries on a site. B-SAFE provides an opportunity to augment these systems with performance communication systems that transcend the traditional organizational aspects of the site and do away with

the discriminatory nature of traditional employee safety programs. It is time to move away from incentive programs based on recorded injury rates and toward programs that recognize safe working conditions and practices. We need to prevent injuries from occurring, not just keep them off the books. **OKS**

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Unmasking the Certification Mill Problem

Online CPR and first aid certification is a fast, convenient, and appallingly common sham.

BY RALPH SHENEFELT

*"Online fake first aid card certification courses save time and money. Fake cpr first aid cards certification can be beneficial for any career person or professional. All daycare workers and teachers should be fake cpr card certified. Online CPR certification is a great alternative to a classroom setting. Take your fake cpr card certification course online today. 98% employers accept our online CPR Certification."*¹

Comparable to degree mills that award academic degrees with little (or no) study and without valid recognition, completely online first aid and CPR training with "instant certification," — training without hands-on skill practice or assessment by a qualified instructor — is rapidly spreading across the Internet.

Most, if not all, first aid and CPR certification mills misleadingly claim to be "nationally accredited," "nationally-validated," or "nationally recognized." However, in North America there is no single (genuine) organization, board, commission, bureau, office, or agency with the power and authority to recognize, accept, or approve first aid or CPR courses. Generally, approval is granted by a state or provincial regulator for use according to a specific administrative rule.

Except for the National Maritime Center (the licensing authority for the U.S. Coast Guard under the auspices of the Department of Homeland Security), which approves first aid and CPR training programs as part of its mariner credentialing program, there is no universally recognized "national approval" for certification in first aid or CPR. This reality is openly exploited by the purveyors of sham online first aid and CPR certification.

To experience it firsthand, I bought an online "professional level" basic life support/CPR course offered by one of the certificate mills. Professional-level CPR is required by state licensing rules in many health-related occupations where competent performance of resuscitation is required or expected, including dental professionals, EMS personnel, nurses, physicians, and assorted other health care workers. After entering my credit card information and taking a poorly written and predictably unchallenging, 25-question multiple choice "exam," I was able to instantly download my professional-level CPR certification card — "valid for two years!" The whole thing, start to finish, including entering the credit card, took me about 20 minutes.

I paid the extra fee to have my newly "earned" certification card and certificate "hand-signed by a certified instructor" sent via U.S. mail. Both official-looking documents stated that I had "successfully completed the requirements and skill examination for adult, child, and infant CPR and automated external defibrillation (AED)." This was a complete falsehood.

CPR is a physical skill requiring movement, coordination, strength, and speed. Consequently, because CPR training is competency-based, it requires substantial hands-on practice. Yet even with hands-on skill practice, nearly 30 years of research has demonstrated that skills deteriorate quickly, in as little two weeks after initial training.

Significant decline is seen within six to nine months for a wide variety of individuals, including nurses, physicians, EMTs, and members of the general public. It is well established that substantial hands-on practice, repetition, and retraining are needed to gain and maintain the motivation, competence, and confidence to put knowledge and skills to use.²

While an Australian study of online CPR demonstrated its usefulness for knowledge acquisition, it also found that the online courses "do not confer any benefit" in skill performance.³

Health care providers who are required by a licensing agency to be certified in CPR are an obvious target demographic for the merchants of fraudulent certification. However, another and perhaps even more lucrative market are laypersons required by state and provincial occupational licensing regulations to be certified in CPR, first aid, or both. Approximately 1,000 different occupations are regulated at the state level, an average of 92 occupations per state.⁴ Regulated occupations where effective first aid and CPR training can mitigate the consequences of injury and reduce the potential for death from life-threatening conditions include school bus drivers, teachers, foster parents, child care providers, coaches, tree trimmers, river guides, wheelchair van drivers, law enforcement officers, health club staffers, water slide attendants, and many more. Yet, every day, thousands, maybe even hundreds of thousands, of those required to learn and provide first aid and CPR are buying their credentials online, leaving them wholly unprepared to face an actual life-threatening medical emergency. Think of that the next time you drop off your child at the day care provider on your way to work.

OSHA's View

On the federal front, first aid and CPR certification mills often claim to be "OSHA Compliant," asserting that their 100 percent online first aid and CPR train-

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While an Australian study of online CPR demonstrated its usefulness for knowledge acquisition, it also found that the online courses “do not confer any benefit” in skill performance.

ing meets federal Occupational Safety and Health Administration rules or standards. Because OSHA had not directly addressed this issue, we requested a Letter of Interpretation as to whether the agency considered online training alone acceptable for meeting the intent of the agency’s basic first aid and cardiopulmonary resuscitation (CPR) requirements.*

In his reply, Thomas Glassy, director of the OSHA Directorate of Enforcement Programs, wrote: “Online training alone would not meet the requirements of these training standards. The word ‘train’ is defined as ‘to make proficient with special instruction and practice,’ *Webster’s II New Collegiate Dictionary*, 1995, p.1, 169. These standards require training in physical skills, such as bandaging and CPR. The only way these physical skills can be learned is by actually practicing them.”⁵

Blended Learning vs. Instant Certification

Online first aid and CPR training with “instant certification” should not be confused with certification earned through a blended learning approach. Blended learning employs an effective mix of face-to-face skill practice and evaluation with online, computer-based learning activities. Blended learning opportunities are an efficient and cost-effective way to learn life-saving knowledge and skills and a completely legitimate way to earn certification. In fact, a U.S. Department of Education meta-analysis and review of evidence-based practices in online learning found that, on average, blended learning was more effective than either face-to-face or online learning alone.⁶ Blended first aid and CPR training is offered by most major first aid and CPR training organizations. Additionally, remote skill evaluation by way of videoconferencing technology can produce learning outcomes (knowledge, skill, and confidence) that are as effective as the

same instruction provided in a face-to-face format.⁷ Research has demonstrated that remote evaluation of resuscitation skills is both acceptable and feasible.⁸

The certification mill problem threatens to undermine first aid and CPR education and certification as a whole. Though it is naïve to expect an immediate resolution, the problem requires direct action by employers, training organizations, states, and the federal government. Employers should begin to question first aid and CPR credentials instead of blindly accepting them or, worse, endorsing the use of online certification. Prominent, influential, national organizations that offer valid first aid and CPR certification, including the American Heart Association® Inc. and the American Red Cross, have so far been publicly silent on the issue. Recognizing what the public should reasonably expect, regulatory agencies in at least 26 states and the District of Columbia have become aware of the “instant certification” scams and are revising rules to prevent its use. As it is clearly in the interest of public health and safety, this positive regulatory trend is something all safety and health professionals should actively encourage.

When used to meet occupational licensing requirements and secure employment, the incompetence and potential harm that counterfeit first aid and CPR certification facilitates is truly sobering. When first aid and CPR certification fraud occurs, everyone loses: employees, employers, legitimate certification agencies, and most tragically those whom safety and health regulations are intended to protect: the ill and injured of all ages. **OKS**

Ralph Shenefelt is a veteran firefighter/paramedic with more than 30 years of experience in the health and safety training industry as an executive, business owner, instructional designer, author, educator, and speaker. He was a member of the 2010 In-

ternational First Aid Science Advisory Board co-founded by the American Red Cross and American Heart Association. He is currently the vice president of Strategic Compliance for the Health and Safety Institute (HSI), the largest privately held emergency care and response training organization in the world, joining together American Safety & Health Institute, MEDIC First Aid, 24-7 EMS, 24-7 Fire, EMP Canada, First Safety Institute, GotoAID, and Summit Training Source. Since 1978, HSI companies have partnered with more than 16,000 approved training centers and have authorized more than 200,000 professional safety and health educators who have certified more than 21 million emergency care providers in more than 100 countries throughout the world.

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*29 CFR 1910.151 (medical services and first aid), 1910.146 (permit-required confined space), 1910.266 (logging operations), 1910.269 (electric power generation, transmission, and distribution), 81910.410 (qualifications of dive team), and 1926.950 (power transmission and distribution).

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The Cooler Solution

The dangers of the quartz halogen work light are well known: They can heat up to more than 570 degrees Fahrenheit, hot enough to ignite paper and wood

BY BRIAN ASTL



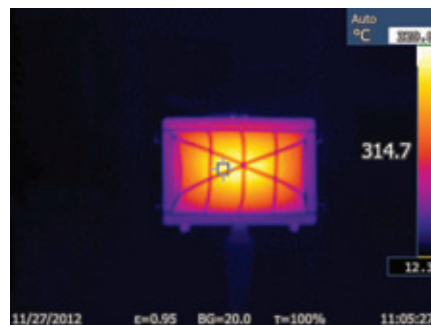
LIND EQUIPMENT

The ubiquitous 500W Quartz Halogen work light

The 500W quartz halogen portable work light is everywhere, and why not? They are cheap, easily moved, and they put out a lot of light to help you work in an area. And while they come in a couple of different styles (on tripods, floor stands, or magnet mounts), at their core they are all the same: dangerous tools that harm workers, start fires, and set off explosions. In our experience working with contractors, electricians, and plant workers, we hear the same complaint everywhere we go: Quartz halogen lights are too hot, and people are getting hurt.

A look at the data reveals why everyone is complaining. We measured a 500W quartz halogen portable work light using an infrared camera for more than four hours. What we found was that within the first hour, the 500W quartz halogen had already reached its maximum temperature of more than 300 degrees Celsius (>570 F). This temperature will ignite paper and wood. It is the melting point of pewter. Styrofoam will become liquid at this temperature. We haven't even begun to discuss what this would do to human flesh.

Below is an infrared picture of the 500W quartz halogen light after one hour. The different colors represent the varying temperature levels in the picture. In the upper right corner, you can see the maximum temperature present in the picture. In this case, it's the 329 degrees C number that represents the hottest point on the 500W quartz halogen light. The number in the middle right represents the temperature at the point where the crosshairs are situated. In this case, 314 degrees Celsius is somewhere near the middle of the light.



A 500W Quartz Halogen work light under IR imaging

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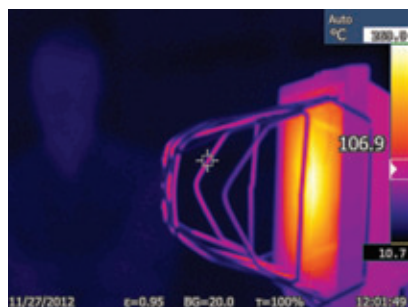
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We found that even the guard that is meant to protect the user from the hottest part of the light reached temperatures above 212 degrees F.



Protective grill on a 500W Quartz Halogen work light registers over 100C/212F

When we think about touching this with our hands or any other part of our bodies, that's when the real danger of a heat source like this becomes apparent. Skin will burn at about 100 C (212 F), which means that the 500W quartz halogen is an imminent and immediate danger just by being in the same room with it. When we analyzed the infrared images closely, we found that even the guard that is meant to protect the user from the hottest part of the light reached temperatures above 100 C (212 F). You can see this in picture below: The crosshairs are centered over one of the guard wires, and the number in the middle right of the screen shows 106 degrees Celsius. Therefore, there is no safe spot to touch a quartz halogen light once it has been powered up for any reasonable length of time.

Alternative Work Lights

The additional danger of using a light that becomes this hot is that it is a fire hazard. Many types of flammables, including common gasoline, will ignite at temperatures less than what the quartz halogen can produce. One of our customers told us a story about a quartz halogen light's being left out overnight and burning through the wood planks on a scaffold. In the morning, they found the light burning through its second set of planks a full story down from where it was left the night before.

Stories like this are not uncommon, and that customer was simply lucky that the quartz halogen light didn't start a broader fire. Another customer of ours tells the story of a quartz halogen light being wrapped in a fire blanket and, because

the light was so hot, the fire blanket began to smolder and smoke.

Why do workers continue to use a light that is clearly dangerous? The answer is that, until now, they rarely had other choices. As mentioned earlier, the 500W quartz halogen light gives off a lot of light and is small and portable. These advantages made it popular and the costs dropped dramatically, so that it became ubiquitous. Everyone knew they were dangerous but put up with the dangers because there were no other options that could give off that much light in such a small, portable unit. However, now there are alternative technologies on the marketplace that are attracting considerable attention.

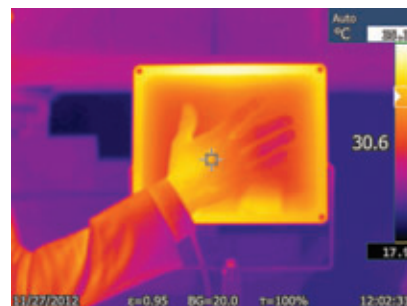
For example, LED technology has developed to the point where an LED floodlight can give off the same useable light as a 500W quartz halogen with none of the downside risks.

At this point, most people are quite familiar with the concept of LEDs. They never require bulb changes, are much more energy efficient than other lighting technologies, and are cool running. The last benefit tends to be overplayed, as LEDs can generate heat. But even with a moderate amount of heat sink design, an LED light will come nowhere close to the heat generated by a 500W quartz halogen light.

A look at the data will once again help to inform this argument. We ran a 500W quartz halogen work light side by side with a 50W LED portable floodlight. The 50W LED floodlight gives off the same amount of useable light in the same light flooding pattern, so it is an excellent unit for an "apples to apples" comparison. The lights were left to run, and periodic infrared readings were taken of both lights to compare their operating temperatures.

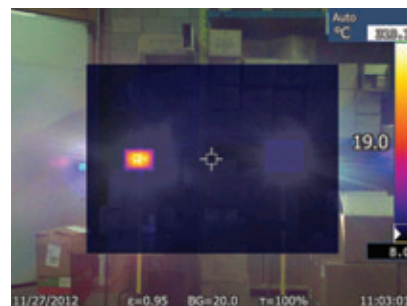
Like the quartz halogen light in our first test mentioned above, the 50W LED portable floodlight reached its maximum temperature in under an hour. However, unlike the quartz halogen light, the 50W LED portable floodlight continued to operate in a temperature range that was not dangerous and could not start a fire. The maximum temperature of the LED light

was just about 35 degrees Celsius (95 F). It's of interest to note that the temperature reading of a human hand is just below 31 C (89 F), meaning the LED floodlight was only slightly warmer than a firm handshake. In the image below, you can see the maximum temperature in the upper right (35.3 C) and the temperature of the hand where the crosshairs are pointed at the middle right (30.6 C).



A 50W LED Portable Flood Light under IR imaging

When viewed together using a composite visual and IR image, the LED floodlight IR signature almost disappears due to the extreme heat of the quartz halogen light on the left.



Side by side IR comparison of quartz halogen and LED flood lights

The advancement of LED lighting technology is a game changer that will save lives and reduce injuries in the work place, let alone dramatically reduce energy usage and downtime associated with bulb replacement. Perhaps now that workers finally have a choice for a bright, portable work light, they will make the decision to stay away from lights that send them home with serious burns. **OKS**

Brian Astl (bastl@lindequipment.net) is VP Sales and Marketing for Lind Equipment, a manufacturer of portable electrical products for the toughest workplaces.



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Diagnosing IAQ Dangers

Wireless instruments and data aggregation systems offer additional advantages for IAQ monitoring.

BY BOBBY SHEIKHAN

Poor indoor air quality (IAQ) can threaten the health and lives of the people in that environment and may require IAQ experts to investigate the source of dangerous air. This article discusses the elements of leading indoor air pollutants and the wireless gas- and radiation-detection instruments for detecting and identifying IAQ threats quickly and efficiently.

Did you know more lives are lost annually to illnesses from indoor air pollution — such as radon-gas-induced lung cancer — than lives lost to car accidents related to alcohol in the United States?¹ While the very real dangers of poor indoor air quality are not widely known, EPA lists it as the fourth-largest environmental threat in the United States,² estimating air quality inside homes can be two to five times more polluted than outside air.³ It's an alarming statistic, especially when you consider most people spend more than 95 percent of their time inside a sealed building.

As a result, IAQ has become a greater concern in the past few decades as building materials have improved for energy efficiency and buildings have become more airtight. The drive for greater HVAC efficiency has brought new buildings and renovations with increased insulation, double-paned windows, and tighter seals throughout. At the same time, a degradation of inside air quality can occur. This is primarily attributable to structures with less fresh air, which is required to dilute airborne contaminants. Such pollutants can lead to an increase in sick building syndrome complaints.

Additionally, impure outside air can find its way inside. While indoor air pollution typically comes from sources inside the building, there also is a risk outside air pollutants can enter buildings through opened doors, damaged window seals, plumbing vents, or leaks. Determining the quality of indoor air involves the collection of air samples, performing computer models of airflow inside a building, and monitoring human exposure to pollutants.

Wireless Detection Monitors Improve Safety

Today, there are new methods to detect indoor air pollution, reduce risk, and maintain compliance. Investigators can now remotely monitor inside a room, plant, or building for gas and radiation or aggregate readings from multiple detectors in various locations by wirelessly networking these instruments. This provides environmental experts new ways to remotely

collect data in real time and automatically generate reports more quickly and easily than ever before.

While both fixed and portable stand-alone instruments are invaluable tools for isolating and identifying dangerous leaks or other health hazards, wireless instruments and data aggregation systems offer additional advantages for IAQ monitoring. These advantages include portability and easy set-up for monitoring multiple locations in a building and the ability to view readings securely from anywhere at any time over the Internet. Easy-to-use monitoring software captures all of the data for documentation and report generation.

In recent years, a host of updated gas detection instruments and systems that incorporate new, field-proven technologies have been designed to enhance worker, responder, and public safety. New gas-detection tools offer more automated features to capture and store greater data readings than in the past. This allows organizations to accurately document events and exposures in real time for use in potential litigation or remediation.

Photoionization detector (PID) sensors capable of detecting minute levels of contaminants give IAQ investigators a fast and effective way to identify and quantify a problem related to volatile organic compounds, including microbial VOCs. Regardless of whether the instrument is a stand-alone or networked device, multi-gas monitors with a PID sensor provide an ideal tool for detecting VOCs. PID monitors are used for both portable IAQ surveys and permanent IAQ subsystems for a building HVAC system. This gives IAQ consultants, safety & hygiene professionals, and building managers a reliable, affordable, accurate means of directly measuring VOCs in real time so problems can be quickly identified and addressed. The parts-per-billion resolution of PIDs provides immediate insight and diagnosis at a detection sensitivity level required for IAQ surveys.

Leading Indoor Air Pollutants

The following indoor air pollutants can cause a wide range of health issues that include, but are not limited to, infections; allergic symptoms; asthma attacks; skin rashes; health problems such as eye, nose, and throat irritation; and lung cancer. The top indoor air pollutants include:⁴

- Carbon monoxide
- Combustion pollutants
- Formaldehyde
- Microbial/biological contaminants (mold, dust mites, etc.)
- Radon
- Secondhand tobacco smoke
- Volatile organic compounds

Indoor air quality monitoring can be employed to detect many of these pollutants so sources can be identified and remediated. VOCs, including formaldehyde, can cause chronic and acute health effects at high concentrations; some are known carcinogens. Combustible materials, such as carbon monoxide, nitrogen dioxide, and particulates, are commonly found indoors from unvented gas heaters, gas and woodstoves, and fireplaces.⁵ Paint odors also are a common complaint in indoor environments. **OKS**

***Bobby Sheikhan** is director of product management for RAE Systems, an innovator in gas- and radiation-detection equipment. He has held several key positions at the company, including global product manager for wireless systems, service manager, application engineer, and regional sales manager. He is experienced in providing training in air monitoring and emergency response planning for a wide range of industries.*

A MARKER FOR BAD AIR

One of the most common ways to get an early indication of air quality in a building is done by taking an indirect measurement of carbon dioxide (CO₂). The American Society of Heating, Refrigeration and Air Conditioning Engineers (ASHRAE) sets standards for CO₂ levels as a marker for indoor air quality.

Levels of CO₂ in excess of 700 ppm over outdoor levels (typically 350 ppm) or greater than 1,000 ppm are an indication of “poor” indoor air quality. High levels of CO₂ can indicate air is not being refreshed enough, such that CO₂ builds up from the accumulation of exhaled breath of the building’s occupants and other sources of CO₂.

While the CO₂ is not considered a contaminant in the low levels typically found indoors, elevated levels in the gas are a key indicator of possible contamination by one of the top air pollutants, such as carbon monoxide (CO) or volatile organic compounds (VOCs).

Other hydrocarbon compounds also can contribute to indoor air quality. Carbon monoxide is a common indoor problem where exhaust fumes can infiltrate an HVAC system. Formaldehyde, for instance, has been linked to sick building syndrome and is an indoor pollutant. It typically can be emitted from building materials and furniture, especially from pressed wood products that use formaldehyde-based adhesives, paints and varnishes.

A real-world example of an IAQ problem is a nail salon business located beneath a law office. Employees and clients of the law office would occasionally smell strong chemical odors emanating from the lower-level salon. A wireless gas-detection monitor was set up in the law office to log data readings over several days. The monitor registered quick, high transient responses shortly after customers arrived at the nail salon, helping the investigator identify nail-polish remover as the source of the odor and recommend ways to improve ventilation.

Indoor Environment Monitoring

Hand-held detection instruments provide continuous-readings with monitors remotely placed in strategic areas

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of a room, office, or plant to gather indoor air quality data. This provides a data trail for investigators to determine the source of a problem or to confirm no problem exists. In locations where several competing plants operate in refinery clusters, GPS (global positioning satellite) capabilities allow monitor readings to verify responsible parties while keeping workers and the public alerted of potential risks.

The use of stand-alone personal monitors, which alert the user to elevated and unsafe levels of dangerous, toxic, and/or flammable gases in the immediate area, are being augmented with instruments and systems capable of sending alarms and data readings wirelessly to a laptop computer, typically located at a central operations center. Advances in secure Internet access and the ability to get data onto the Internet from almost anywhere have made these real-time interactions possible.

Wireless Plant-Wide Monitoring of High-Risk Areas

Wireless-enabled instruments also can be placed in multiple locations or rooms throughout a building or plant for continuous monitoring of selected, high-risk areas. These include copy rooms, art rooms, storage rooms with cleaning products or painting supplies, and areas where malfunctioning equipment can potentially release dangerous emissions.

Monitoring software is used to collect sensor readings in real time and display the data in meaningful ways. The raw data is stored for later analysis or use in legal action or remediation negotiations, and the software can help in generating automated reports based on the collected data.

IAQ investigators can utilize a number of detection technologies to track down contaminants. Wireless IAQ monitors provide investigators with a fast and effective way of identifying and then quantifying a VOC problem, and then wirelessly send the collected data to a portable device. If the PID detects anything, then the investigator knows to look for VOCs. Once a VOC is identified, then the PID can be scaled to that chemical so the on-scene investigator knows the precise compound and its concentration levels in the area. This not only saves time for the IAQ investigator, but also can prevent a small IAQ problem from becoming a major incident. **OKS**

First Aid Fundamentals

The ISEA First Aid Product Group's members are now working on the 2014 edition of the American national standard specifying minimum requirements for the contents of workplace first aid kits.

BY JERRY LAWS



First aid training for the workplace begins with three fundamental standards affecting general industry. ANSI/ISEA Z308.1-2009 is the American national standard specifying minimum requirements for the contents of workplace first aid kits, setting a baseline of items that should enable someone in a small workplace to deal with injuries that might occur there. The OSHA standard, 29 CFR 1910.151, has three elements, including one (1910.151(c)) requiring emergency eyewash and showers within a work area where someone could be exposed to corrosive materials. The third key standard is 1910.1030, bloodborne pathogens. It's the first one mentioned in OSHA's Best Practices Guide about first aid program fundamentals because it applies to any employee who is expected to render first aid as part of his or her job duties, and it includes a list of training that must be provided when that worker is initially assigned and at least annually after that. At a minimum,

according to 1910.1030(g)(2)(vii), these must be included in this training:

- An accessible copy of the text of the bloodborne pathogens standard and an explanation of its contents
- Explanations of the epidemiology and symptoms of bloodborne diseases and the modes of transmission of bloodborne pathogens
- An explanation of the employer's exposure control plan and how the employee can obtain a copy of the written plan
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials
- An explanation of the use and limitations of methods that will prevent or reduce exposure, including engineering controls, work practices, and PPE
- Information on the types, proper use, location,

removal, handling, decontamination, and disposal of PPE and an explanation of the basis for selection of PPE

- Information on the appropriate actions to take and people to contact in an emergency involving blood or other potentially infectious materials

- An explanation of the procedure to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available

- Information on the post-exposure evaluation and follow-up the employer is required to provide for the employee following an exposure incident

- An opportunity for interactive questions and answers with the person conducting the training session

AEDs and CPR Training

OSHA and the American Red Cross also recommend creating an automated external defibrillator (AED) program and providing related training in AED use and CPR to employees. The Red Cross Ready Reference document for adult first aid/CPR/AED is a simple, step-by-step guide for helping an injured or unconscious person, a burn victim, a person who is bleeding, or someone who is choking and cannot breathe. The document is available at http://www.redcross.org/images/MEDIA_CustomProductCatalog/m4240170_Adult_ready_reference.pdf.

The OSHA Best Practices Guide discusses various teaching methods, along with an extensive list of elements to include in a first aid training program. It suggests emphasizing skills training and confidence building over classroom lectures and recommends having trainees develop hands-on skills through practice with partners and manikins. This combination of knowledge and skills prepares them to respond to life-threatening emergencies (including chest pain, stroke, breathing problems, anaphylactic reactions, seizures, unconsciousness, and other emergencies).

In addition, the guide recommends designing the training program for the specific work site and including first aid instruction for managing non-life-threatening emergencies (specifically wounds; thermal, electrical, or chemical burns; musculoskeletal injuries; exposure to temperature extremes; and eye injuries). The guide is available at <http://www.osha.gov/Publications/OSHA3317first-aid.pdf>.

Revising the Z308.1-2009 Standard

While it seems clear enough, OSHA has compiled a small library of interpretation letters explaining when employers are required to provide first aid kits. One of these from 2007 quoted 1910.151(b), which says, "In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for treatment of all injured employees, a person or persons shall be adequately trained to render first aid. Adequate first aid supplies shall be readily available." In this 2007 letter, OSHA's Richard Fairfax explained the provision means employers "may elect not to provide first aid services if all such services will be provided by a hospital, infirmary, or clinic in near proximity to the workplace. If the employer has persons who are trained in first aid, then adequate first aid supplies must be readily available for use. Therefore, employers are required to provide first aid supplies that are most appropriate to respond to incidents at their workplaces. OSHA allows employers to provide first aid supplies specific to the needs of their workplace."

"The reality is that doesn't cover a lot of injuries, especially for the number of people they're trying to help. It's just not sufficient."

— David L. Lapp, North by Honeywell's senior product manager, first aid and chair of the ISEA First Aid Product Group

There is no requirement to obtain a consulting physician's approval of a workplace first aid kit's contents, but whoever selects these should be competent in first aid and knowledgeable about the hazards present in the workplace.

Safety managers can consult the Z308.1-2009 standard, *Minimum Requirements for Workplace First Aid Kits and Supplies*, to find the recommended contents for a basic kit as well as the optional items to augment the basic list. Kits should be inspected regularly to ensure they remain stocked and that the contents still meet the needs of the workplace.

David L. Lapp, North by Honeywell's senior product manager, first aid, chairs the ISEA First Aid Product Group, whose members are now working on the 2014 edition of the standard. "We're just at the beginning of the process to try to come up with an agreed format, if you will, to make sure we are covering all of our bases," he said during a Feb. 21 interview. "Our main concern is that in today's environment, the current ANSI standard is a pretty minimal standard. There's not a whole lot to it. It effectively is a personal or just a small-office type of kit that doesn't really address industrial needs or even larger facilities. The problem is that when it comes to OSHA compliance, you'll have a company that might have 50, 70, 100 people on an industrial floor of some kind — it could be manufacturing, assembly, whatever that industrial setting might be, a construction site — and they will ask for and buy an ANSI-compliant kit. And that's it, they think they're covered. The reality is that doesn't cover a lot of injuries, especially for the number of people they're trying to help. It's just not sufficient."

For example, there is no burn dressing in a kit that strictly complies with the Z308.1-2009 standard, nor is there a cold pack, Lapp said. "Don't you think of an instant cold pack as being a standard first aid item? A contusion that requires swelling reduction, whenever you bump yourself — the first thing you do is grab some ice. The standard ANSI first aid kit has nothing cold in it," he said.

Rather than a complete rewrite, the 2014 revision will be "an expansion of the standard based on current industrial environments," he said. "I'm really thinking about this in terms of worker safety and not in terms of sales. This is not going to increase my sales. What this will do is make sure that people out there in workplaces that have hazards and dangers are going to be protected. That's the main goal of this ANSI standard."

He said the five members of the committee working on the standard want to make sure they do the right research as they develop it, in order to ensure that managers who buy first aid supplies have a standard that meets their needs. The committee's meetings about the revision have begun, and its members probably will convene again at the ASSE Safety 2013 conference in Las Vegas in June 2013, Lapp said. **OKS**

Jerry Laws is editor of Occupational Health & Safety.

The Wonderful World of Gas Detection

Today's gas detection is not as prehistoric as it sometimes may seem to be. The technology of gas detection is improving, and there are new technologies that will bring new capabilities in the not-so-distant future.

BY DAVID D. WAGNER



INDUSTRIAL SCIENTIFIC CORPORATION.

I recently returned home from a brief family winter vacation to Orlando, Fla. The trip came on the heels of a meeting of the NFPA 350 committee working on a best practice guideline for confined space entry. After talking about little else but gas detection for three days, I couldn't help but wonder as I walked around the expansive Disney theme parks what gas detection would be like today if Mr. Walt Disney had spent his lifetime as the "Guardian of Gas Detection" and not the "Author of Animation."

Gas detection users face many daily pains. Gas monitoring instruments are difficult to maintain and are often considered to be difficult to use. Detection capabilities are limited by technology to the point that some prime targets are all but impossible to detect reliably, and true standards that govern the industry are non-existent or inconsistent at best. In Disney's world, everything was possible through imagination and technology. From Mickey Mouse to mermaids, to infinity and beyond, Disney enabled all things to appear real. I can only imagine how Disney would have eliminated the gas detection pains that the industry faces today.

The ability to detect gases reliably under all conditions, or even at all for some gases, is limited by the sensing technologies that are available today. Since I came into the industry in 1986, benzene has been considered to be the Holy Grail of gas detection. The one who finds the complete solution to detect benzene specifically and accurately at part-per-billion levels with a hand-held gas detector would surely hold the keys to the kingdom. Similarly, the ability to detect combustible gases with a sensing technology that does not require the presence of oxygen in order to work properly, is not susceptible to being poisoned by the environment in which it is used, and can detect all potential explosion hazards, including one of the most commonly encountered and most dangerous, hydrogen, escapes us.

To the average worker, gas detectors are intimidating. They are a lot like giving your grandmother a remote control for her TV in the '70s, a VCR in the '80s, or a cell phone in the '90s. Ask most any gas detection user about what he thinks about his gas monitor, and likely he will tell you he

We can't drink from the sacred cup just yet, but advances in low power infrared, carbon nanotube, and solid polymer sensing technologies are getting us ever closer to that day.

believes that it can protect them and potentially save his life, but he really wishes that he did not have to wear it or carry it at all.

He may even tell you that he doesn't really understand how to use it or even what it does. Now, we couple in the fact that the instrument needs to be bump tested on a daily basis and calibrated routinely, and just like Grandma, they think they might be better off without it.

Why Don't LELs Agree?

The world is a very large place when it comes to gas detection. The differences in related standards, whether they are exposure standards, use standards, or standards of physical properties of the gases themselves, sometimes seem to be spread as far as the east is from the west. For example, the lower explosive limits (LEL) of methane and propane are accepted in North America to be 5 percent and 2.1 percent, respectively, while the accepted LEL levels of these gases throughout Europe are 4.4 percent and 1.7 percent, respectively.

How can these gases possibly be more explosive in Europe than they are in the United States or Canada? How can an instrument that is tested and certified for use in an underground coal mine in the United States not be acceptable or permitted to be used in a mine in South Africa or Australia? Why is the permissible exposure limit for carbon monoxide set at 50 ppm by the U.S. Occupational Health and Safety Administration but set at only 25 ppm in the state of California and 30 ppm in the United Kingdom or Australia? I am quite certain that whether I am in Pittsburgh, Pa., Sacramento, Calif., or Melbourne, Australia, and I am exposed to carbon monoxide, it will affect me exactly the same way.

Seeing the Future

In Disney's world of gas detection, gas hazards would never be hidden from us. We would simply put on our 3-D glasses, and any hazard that lurked in the atmosphere would immediately appear. We would be

able to identify exactly what gas it is and know the concentration in the blink of an eye. We would be able to see exactly where the gas came from and know how to safely eliminate it.

All concerns about ease of use would be gone. There would be nothing to maintaining a gas detector, other than taking out a tissue and wiping away the smears. If he wished long and hard enough, they would probably even be self-cleaning.

Disney's kingdom would be unified. One size and one set of standards would fit everyone, everywhere, and death and injury due to gas hazards would be eliminated from the workplace and the world.

But as much as we don't live in the Magic Kingdom's "Fantasyland," we aren't the Flintstones, either. Today's gas detection is not as prehistoric as it sometimes may seem to be. The technology of gas detection is improving, and there are new technologies that will bring new capabilities in the not-so-distant future. Wireless technology for capturing data is emerging quickly, allowing us to learn more about the environments that we work in every day.

We can't drink from the sacred cup just yet, but advances in low power infrared, carbon nanotube, and solid polymer sensing technologies are getting us ever closer to that day. Maintenance concerns are not gone, but full gas detection solutions like our iNet — Gas Detection as a Service program allow companies that use gas detection to focus on their core business needs and place the pains of managing a gas monitoring program on gas detection experts.

No, we haven't eliminated death in the workplace due to gas accidents just yet, but if we continue to dream and imagine hard enough, our wish will come true. And when it does, we will find out that it is indeed a small world after all. **OHS**

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Building Wellness Programs with Impact

Rising worker's comp medical costs create a strong case for them.

BY SONYA C. CONNER



Historically, many employers have implemented wellness programs necessitated by the pains associated with rising company medical insurance premiums. These increasing premiums are due, in part, to the significant increase in risk factors of America's workforce, such as obesity, smoking, heart disease, diabetes, and aging workers.

Today, employers are also considering the impact of these risk factors on the medical costs of their worker's compensation claims. Medical costs have steadily increased during the past 20 years, accounting for nearly 58 percent of the total cost of worker's compensation claims in 2009.¹ According to the Insurance Information Institute, if this increasing trend holds,

medical costs will account for up to 67 percent of total costs of worker's compensation claims by 2019.

Worker's compensation premiums are one of the largest operational expenses for many employers. While any risk factor may potentially affect the cost of a worker's compensation claim, obesity and related diseases top the chart. A National Council of Compensation Insurance (NCCI) study concludes that medical costs for the same injury are three times higher among obese claimants in the first year, increasing to five times higher at 60 months. In addition, claims for the non-obese are much more likely to be "medical only" (obese workers, when injured, tend to lose time and collect indemnity). For the same injury and all else being equal, the range of medical treatment,

the costs, and the duration of the claim are consistently greater for obese employees.²

Implementing a workplace wellness program can help employers control worker's compensation claim costs by generating a reduction in return-to-work days, a reduction in frequency and severity of claims, and an increase in staff productivity. Wellness programs provide mechanisms that aid employees in adopting healthier lifestyles and help educate them on reducing or eliminating their risk factors. Creating awareness of health benefits, as well as introducing an interdisciplinary wellness program into a company's workplace, has multiple benefits, such as:

- Helping to control costs. An investment in employees' health may lower health care and medical costs associated with worker's compensation claims. A wellness program also encourages employees with health risk factors to make lifestyle changes to improve their quality of life and lower costs. The payoff in dollars, as well as in quality of life, can have a big impact on your company's bottom line.

- Healthier employees are more productive. This has been demonstrated in factory settings and in office environments in which workers with workplace wellness initiatives miss less work. Presenteeism, in which employees are physically present on the job but are not at their most productive or effective, is reduced in workplaces that have wellness programs.

- Healthier employees miss less work. Companies that support wellness and healthy decisions have a greater percentage of employees at work every day. Because health frequently carries over into better family choices, employees may miss less work caring for ill family members. The cost savings of providing a wellness program can be measured against reduced overtime to cover absent employees and other aspects of absenteeism.

- Improved morale and enhanced image for the organization. A company that cares about its employees' health is often seen as a better place to work. Those companies save money by retaining workers who appreciate the benefit of a wellness program and also by attracting new employees in a competitive market.

Seven Benchmarks for Solid Wellness Programs

Employers who understand the impact

Because health frequently carries over into better family choices, employees may miss less work caring for ill family members.

of and implement wellness programs can positively affect their bottom line by reducing both their medical insurance premiums and their worker's compensation costs. Achieving these results will require a team approach with the human resources, employee safety, and worker's compensation departments working in concert.

The relationship between living a healthy lifestyle and decreased work-related injuries is marked now more than ever. The challenge of managing rising cost takes a risk management strategy that embodies a holistic approach. Incorporating a wellness program that focuses on a prevention strategy will help to control risk factors that cause present and future losses related to injuries and or illnesses.

Wellness programming needs to take an innovated risk management approach similar to that of safety programs: Identify the root cause of claims and attack those instead of waiting for claims to occur.

Employee safety and worker's compensation directors should become familiar with the resources available to their employees from the medical benefits side. These benefits often include wellness initiatives such as assistance with tobacco cessation, weight loss, nutritional counseling, reduced pricing on gym memberships, and stress management. These programs are typically underutilized, yet may give the employer a cost-effective way to proactively promote wellness. Employees spend many of their waking hours at work, nearing 50 hours per week on average. This makes the workplace an ideal setting to address health and wellness issues.

Employers who are considering implementing wellness programs are often overwhelmed with the idea and are unsure where to start. The Wellness Councils of America (WELCOA), an organization dedicated to the promotion of work site wellness, has identified the following seven benchmarks for developing results-oriented workplace wellness programs.³

1. Capture CEO support. A commitment from the top is critical to the success of any wellness initiative.

2. Create cohesive wellness teams. Wellness teams should include a cross-section of potential program participants.

3. Collect data to drive health efforts. Gather baseline data to help assess employees' health interests and risks.

4. Carefully craft an operating plan. The plan should include a mission statement for the program along with specific, measurable, short- and long-term goals and objectives.

5. Choose appropriate interventions. Interventions should address prevailing risk factors in your employee population and be in line with what both management and employees want from the wellness program.

6. Create a supportive environment. Create a culture that supports work site health promotion that may have features such as healthy food choices in their vending machines, a no-smoking policy, and flexible work schedules that allow workers to exercise.

7. Carefully evaluate outcomes. Evaluation allows the company to celebrate goals that have been achieved and to discontinue or change ineffective initiatives.

Toward a Fit and Healthy Bottom Line

As employers face rising premiums in health care and worker's compensation insurance, many are turning to wellness programs in order to reduce costs. Implementing a holistic wellness program enables employers to reap the benefits of workplace health promotion, including healthier employees, reduced absenteeism, increased productivity, a boost in morale, as well as reduced costs.

All of these benefits will contribute to keeping the company's bottom line fit and healthy. **OKS**

Sonya C. Conner (sonya.conner@BBandT.com), RN, BSN, CPHRM, is vice president and health care risk management consultant at BB&T Insurance Services, Inc.

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3. Wellness Councils of America (WELCOA), www.welcoa.org



DVD-BASED TRAINING PROGRAMS

Brady's DVD-based training programs for the Globally Harmonized System (GHS) and OSHA's Hazard Communication Standard will train and inform employees about the updated standard. The new training programs include videos and literature that will help employees understand the changes to OSHA's HazCom rule to align it with GHS. The two available programs — The GHS Hazard Communication training program and The Hazard Communication comprehensive training program — include an instructor's guide, employee quizzes, five employee handbooks, and accompanying PowerPoint presentations.

www.ohsonline.com/productinfo

CIRCLE 300 ON CARD



PLASTIC DEFIBRILLATOR WALL CASE

Allegro's Plastic Defibrillator Wall Case is made of corrosion-resistant ABS plastic with high-visibility graphics and comes with three optional slide-in shelves. Two additional plastic models are available with a fully sealed, waterproof strobe and audio alarm and with decimal alarm only. The metal cases are constructed with corrosion-resistant steel and feature a door-front window and latch handle. Available in large and small sizes, the metal cases are equipped with a battery-operated audio alarm, and a waterproof strobe feature is available on the small model.

www.ohsonline.com/productinfo

CIRCLE 301 ON CARD



FIRE VENT

The **Bilco Company's** Lumivent®, an automatic fire vent with multi-wall polycarbonate covers that provide natural daylighting, features a pitched cover design to meet both UL 793 and 2012 IBC 2610.3 Building Code requirements. Lumivent features flat polycarbonate panels that are incorporated into a sloped cover design that encourages burning embers to roll off the covers rather than burn through, per the intent of these fire protection standards. Compliance to both standards provides a high level of defense and makes the Lumivent one of the safest daylighting vent options on the market.

www.ohsonline.com/productinfo

CIRCLE 302 ON CARD



PORTABLE LOADING PLATFORMS

GREEN Access & Fall Protection offers portable loading/unloading platforms designed specifically for use in remote shale oil fields. These platforms offer flexibility to utilize a temporary loading station that can be broken down and taken to the next facility or project, rather than being installed as a permanent platform that can only be used at one location. The modular equipment, for example, can be installed at a trans-loading facility on one side of the rail line to unloading fracking sand.

www.ohsonline.com/productinfo

CIRCLE 303 ON CARD



EYEWEAR MULTI-PACK

Gateway Safety has introduced a 10-unit multi-pack in the StarLite® MAG line, which is Gateway Safety's most popular and cost-effective bifocal eyewear. Each multi-pack contains two of each diopter: 1.0, 1.5, 2.0, 2.5, and 3.0, in the clear lens only. In addition, Gateway Safety has added a new Clear In/Out Mirror lens option in StarLite MAG, reducing the effects of intense bright light and glare as workers transition from indoor to outdoor tasks. It's one of Gateway Safety's most popular lens options. The new Clear In/Out Mirror lens is available in 1.5, 2.0, and 2.5 diopter levels.

www.ohsonline.com/productinfo

CIRCLE 304 ON CARD



PROTECTIVE CLOTHING WEBSITE

The new **Insect Shield Workplace Safety & Health** online store, <http://www.insectshield.com/shop>, makes protective clothing and gear items available to workers in at-risk locations across the globe. The Insect Shield assortment consists of work wear, professional apparel, and accessories, including clothing that also offers sun protection, flame resistance, and high visibility. Additional protective items, such as mosquito nets for use at home, are included. The new storefront offers the added functionality of zoom to reveal detailed product feature views, videos to explain how the technology works, and enhanced site navigation.

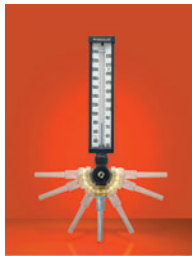
www.ohsonline.com/productinfo

CIRCLE 305 ON CARD



PERSONAL PROTECTIVE EQUIPMENT

With many unique work environments, choosing personal protective equipment can be a difficult task. Designed to meet the challenging conditions of food processing, produce, and even chemical industries, the **PolyConversions Inc.** VR Chap Apron provides an alternative where traditional aprons may not be suitable. Made from 8mil VR material, the VR Chap Apron has ties at the neck, waist, and legs allowing maximum adjustability for a superior individual fit. This adjustability not only provides comfort but also insures the apron stays secure even in strong airflow conditions.
www.ohsonline.com/productinfo
 CIRCLE 306 ON CARD



ADJUSTABLE ANGLE GLASS THERMOMETER

The **Weksler®** A935AF5 universal "adjust-angle" thermometer is rated at $\pm 1\%$ accuracy and is available with either a seven or nine-inch scale. 360° case and stem rotation and large graduations make it easy to read in nearly all types of installations. Other standard features include a high impact, lightweight Valox® V-shaped black case, a protective glass front and blue spirit fill that eliminates the use of mercury. An aluminum case is also available along with an optional plastic window and a choice of several additional stem lengths.
www.ohsonline.com/productinfo
 CIRCLE 307 ON CARD



FLUID-DISPENSING SYSTEMS GUIDE

Dymax Corporation has released a new selector guide for manual and automated fluid-dispensing systems. This comprehensive guide provides detailed product information and is organized in a manner that makes comparison easy. Specifications such as dispense modes, viscosity range, and material compatibility are included, as well as the type of supply reservoir that each unit can accommodate. These systems include various automatic and manual dispense systems, spray valves, and related components for seamless integration into the assembly process.
www.ohsonline.com/productinfo
 CIRCLE 308 ON CARD



HEALTH EDUCATION CATALOG

The 2013 Hands-On-Health catalog, featuring the latest classroom teaching aids for health educators, is available from Nasco. **Nasco's** 140-page catalog includes carefully selected products and unique teaching aids that bring excitement to the classroom and make learning about health issues fun and easy. Over 125 new products have been added to this year's selection of models, displays, manikins, charts, DVDs, computer software, and books that cover topics such as sex education, AIDS, alcohol and other drugs, anatomy, sports medicine, CPR, first aid, nutrition, and more.
www.ohsonline.com/productinfo
 CIRCLE 309 ON CARD



SHIELDING PRODUCTS

No RF/EMI isolation challenge is too small or too large for **Select Fabricators, Inc.** All Select-A-Shield RF/EMI shielding products are flexible and highly conductive. Select offers standard and custom sizes as small as an automobile keyfob and as large as room-size enclosures. Select-A-Shield enclosures, curtains and pouches make it easier to develop, test, produce, and isolate electronic devices. SELECT offers a full line of over 40 standard models of Select-A-Shield RF/EMI enclosures including pouches, curtains, tabletop and freestanding enclosures, mobile forensic pouches and forensic enclosures. Options include lighting, air-conditioning, cable sleeves and a choice of filters/connectors.
www.ohsonline.com/productinfo
 CIRCLE 310 ON CARD



LEVEL LOADER

The new P3™ All-Around level loader from **Presto Lifts** is economical as well as ergonomic. Though it requires no electrical power and little maintenance, it virtually eliminates the productivity-robbing, injury-producing bending, lifting, reaching, and stretching common to pallet-loading applications. The pneumatic airbag of the P3 All-Around automatically lowers or raises a pallet as boxes are added or removed, maintaining the top layer at a convenient height. And the turntable ring (or optional solid turntable platform) at the top of the unit allows the user to spin the load so he or she can stand in the same spot throughout the loading or unloading process.
www.ohsonline.com/productinfo
 CIRCLE 311 ON CARD

NEW PRODUCTS

WWW.OHSONLINE.COM/MCV/PRODUCTS



PROTECTIVE EAR MUFF

Radians' new Hi Visibility Terminator™

29 premium, lightweight ear muff provides excellent protection with superior comfort day and night. The bright, Hi-Viz ear cups provide superior visibility during the daytime, and the reflective material on the headband affords visibility at night. The adjustable, padded, moisture-wicking headband moves moisture away from your head to keep you cool and comfortable. The ear muffs are available in Hi-Viz green or orange.

www.ohsonline.com/productinfo

CIRCLE 312 ON CARD



DISPOSABLE RESPIRATOR

Added to **Magid's** family of Precision Safety® Disposable Respirators is the IR1950N95 Disposable N95 Respirator. Engineered to maximize ventilation while maintaining a solid barrier against airborne particulates, this high-efficiency valve keeps the wearer's face cool and dry. Comfort is further enhanced by an adjustable nosepiece with foam PVC seal, latex-free elastic headbands, and a lightweight construction. Ideal for applications such as grinding, sanding, sweeping and assembly, IR1950N95 Respirators are NIOSH N95 42 CFR 84 approved to filter out at least 95 percent of solid and non-oil liquid airborne particulates 0.3 microns and larger.

www.ohsonline.com/productinfo

CIRCLE 313 ON CARD

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2217LED
#15460

2224LED
#15720

2206LED
#08050

INTRINSICALLY SAFE RATINGS

UL Protection Methods Divisions 1 & 2, Class I, II, III
Div I, Groups A-G
Class I, II, III, Div 2
Groups A-G, Operating Temp T5

2217 LED	2224 LED	2206 LED
40 LUMENS 200h 1946 cd	40 LUMENS 250h 1930 cd	30 LUMENS 150h 1m
1m 25m 1m	1m 25m 1m	1m 1m

RAZOR

#60102

#60100

90 LUMENS

22h

7000 cd

1m

170m

1m

INTRINSICALLY SAFE RATINGS

Intrinsically Safe - Zone Zero Rating
Worldwide Safety Standard:
IECEx Exia IIC T4 iaD T135C Ga, Da
European Safety Standard:
ATEX II GD Exia IIC T4 iaD T135C

UL Protection Methods:
Class 1 Div 1 Groups A,B,C,D
Class 1 Div 2 Groups A,B,C,D
Class 2 Div 1 Groups E,F,G
Class 2 Div 2 Groups F,G
Class 3
T4

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FLASHLIGHT.com



ROTARY HAMMERS

Metabo Corporation offers two ergonomically designed D-handle rotary hammers for use in a range of drilling and chiseling applications. The KHE-D24 and KHE-D28 extend the operator's reach and reduce fatigue in both down-drilling and overhead drilling applications. Ideal for use in through drilling and anchor setting, as well as light chiseling in concrete, brick, block, and stone, these models keep the operator's hand and arm in alignment with the hole being drilled. They maximize drilling pressure, precision, and operator control.

www.ohsonline.com/productinfo

CIRCLE 314 ON CARD



TEMPERATURE METER

Control Company's Traceable® Humidity/Temperature/Dew/Frost Point Meter uses a special type of artificial intelligence to provide under-10-seconds response time, taking samples 1.5 times per second. A fuzzy logic algorithm delivers answers almost instantly. Memory recalls both MIN/MAX readings in dew/frost point, temperature, and humidity. HI/LO alarms are programmable in dew/frost point, temperature, and humidity. When an out-of-range condition is sensed, the alarm sounds and the display flashes. A computer output captures, transfers, stores, and prints data.

www.ohsonline.com/productinfo

CIRCLE 315 ON CARD



THERMAL IMAGING CAMERA

The **Dräger** thermal imaging camera UCF 9000 is UL approved as intrinsically safe for use in potentially explosive settings. Designed for extended use in the most hostile environments, these devices are resistant to heat, water, dust, and other contaminants typically encountered during emergency response situations and are specially engineered for real-world use, including drops and single-handed use. These cameras are powerful enough to deliver a clear and detailed image in extreme heat regardless of the environment.

www.ohsonline.com/productinfo

CIRCLE 316 ON CARD



PRESSURE TRANSMITTER

The **Ashcroft®** DXLdp low differential pressure transmitter delivers unprecedented reliability for critical air flow, room pressure, and air handler applications.

Equipped with the exclusive Ashcroft® SpoolCal option, this transmitter can be validated, zeroed, and calibrated while on line without ever having to disconnect the pressure tubing. Diagnostic indicator lights and easily accessible test jacks enhance the ease of testing, while DIN rail mounting makes installation a "snap." Simple installation, low maintenance, and easy validation add up to significantly reduced operating costs.

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CIRCLE 317 ON CARD

[HOW EXPLOSIVE IS YOUR TRAINING?]

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[WWW.BULLEX.COM]



SELF-PROPELLED DRUM HANDLER

Morse Manufacturing now offers PILOT, a power-propelled, power lifting and pouring walk-behind drum handler. The new and innovative design provides unsurpassed operator control, productivity, and safety with floor travel speed of 3.0 mph, drum lifting speed of 25 fpm, and max empty travel speed of 3.6 mph and lift 39 fpm as the load decreases. The drum dumps from heights of up to 10.5 feet and 11 inches beyond straddle-type legs. PILOT can lift drums that weigh up to 1,500 pounds.

www.ohsonline.com/productinfo

CIRCLE 318 ON CARD



VACUUM RECOVERY SYSTEM

The **VAC-U-MAX** Vacuum Recovery System for Granular Activated Carbon conveys the spent carbon material from holding tanks to waste containers. The VAC-U-MAX self-contained Granular Activated Carbon (GAC) delivery system is mounted on a self-contained skid. This system is a complete pre-packaged dilute phase pneumatic conveyor system to deliver or remove GAC from scrubber towers and holding tanks. Included are tubular probing wands, convey hose, filter receiver, vacuum pump, and control panel.

www.ohsonline.com/productinfo

CIRCLE 319 ON CARD



AIR VELOCITY METER

A sensitive anemometer provides useful information for numerous industrial and construction applications. Measuring air velocity in ventilation shafts, air conditioning conduits, air ducts, or chimney flues is readily accomplished with the handheld Turbo Meter from **Davis Instruments**. Those performing welding, mining, spraying, odor control, or crane and high-rise jobs will also find this instrument indispensable.

www.ohsonline.com/productinfo

CIRCLE 320 ON CARD



FLAME-RESISTANT OUTERWEAR

Workers in cold climates need flame-resistant (FR) outerwear that keeps them warm without weighing them down. **Workrite** teamed up with **Westex**™ and **3M**™ to develop a new line of insulated FR garments: 3M™ Thinsulate™ Platinum Insulation FR outerwear. Thinsulate FR is 44 percent warmer than standard insulated FR workwear with modacrylic quilting systems. A special hybrid of comfort, functionality, and protection, this new Thinsulate FR line features an insulated field coat, bib overall, and hood, all with the durability to handle cold-weather conditions.

www.ohsonline.com/productinfo

CIRCLE 321 ON CARD



DUST COLLECTION SYSTEM

SWECO's Sanitary Bag Dump with Integral Dust Collector significantly reduces workers' exposure to nuisance dust. The Bag Dump Dust Collection System is designed to work exclusively with the SWECO Bag Dumper, used to screen material at bag unloading stations. The system improves particulate containment by providing substantial vacuum below the bag dump screen rather than above. This pulls dust down and away from the operator, greatly improving airborne particulate flow into the collection system's filters.

www.ohsonline.com/productinfo

CIRCLE 322 ON CARD



EQUIPMENT CATALOG

The 2013 **Lincoln Electric** Equipment Catalog can be downloaded and viewed on Apple and Android smartphones and other devices. The catalog also features a bound-in, removable copy of the company's expanding Welding Gear catalog, including Red Line™ apparel, VIKING™ auto-darkening helmets, and Radius™ tools. New product sections include Training Products, Orbital Welding Systems, Automated Solutions, and an Expanded Accessories section.

www.ohsonline.com/productinfo

CIRCLE 323 ON CARD

KeySix

Driver Focused Metrics

DRIVER SAFETY MANAGEMENT TOOL

Smith System has introduced KeySix, an important new product that will maximize driver safety management. KeySix will translate comprehensive, real-time driver safety information into actionable data in one place by utilizing a secure, cloud-based system. From MVR records to driving histories, driver training, and learning management systems, companies typically manage driver data through a series of disconnected spreadsheets. Managers spend hours collecting driver data and recording observations on driver behavior but are often still hindered in their efforts to implement actions that can lower their fleets' risks and costs.

www.ohsonline.com/productinfo

CIRCLE 324 ON CARD



TANK CLEANING HEAD

The new Torrent™ 50 tank cleaning head from **NLB Corp.** delivers 3-D water jet action with the force of 600 hp and fits through a tank or reactor opening as small as 6 inches (15 cm). The Torrent 50, rated for pressures up to 20,000 psi (1,400 bar) and flows to 50 gpm (183 l/m), has two high-velocity water jets that spin vertically while the head spins horizontally. The result is complete 3-D coverage of the tank or reactor interior that removes hardened resins, plastics, and more. The process is fast, productive, and environmentally friendly, and it eliminates any need for personnel to enter the vessel.

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CIRCLE 325 ON CARD



UPGRADEABLE THERMAL IMAGER

The **Wahl Instruments Inc.** Heat Spy is the World's First Upgradeable Thermal Imager — you can upgrade in the field after purchase to expand the functionality of your camera. Extend the temperature range or add wide angle and/or telescopic lenses to your imager. Prolong the life of your investment by adding features when you need them. Wahl Heat Spy Thermal Imaging Cameras feature SPY-CARE, an industry-first, two-year no fault warranty coverage. If you drop it from a 20-foot ladder or back over it with a truck — Wahl will fix any unintentional damage or replace your camera for free.

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CIRCLE 326 ON CARD



SAFETY APP

The **Walter Safety** App has been designed to provide metalworkers around the world with easy access to essential safety information when working on factory floors, job sites, etc. The Walter Application includes an abrasives speed chart, grinding angles, drill bits speed chart, annular core cutter speed chart, unit converter, a flashlight, and a level.

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CIRCLE 327 ON CARD



COMFORTABLE TOWER HARNESS

MSA's Evotech Tower Full-Body Harness is designed with a body belt and saddle to provide utility workers with unsurpassed comfort during long shifts. In addition to the superior technology of the standard Evotech Harness, the Evotech Tower Harness offers variable-width webbing in the sub-pelvic area to increase comfort and support when work positioning. It also offers adjustable D-ring position and an integral body belt and removable saddle constructed of dual durometer pad and Sorbtek fabric for ultimate comfort.

www.ohsonline.com/productinfo

CIRCLE 328 ON CARD



SAFETY CATALOGS

Two new safety guidebooks and product catalogs from **ABB JOKAB SAFETY** are now available: "Machine Safety Systems and Components Compendium" and "Safety Switches and Emergency Stops." The 564-page "Compendium" is a comprehensive resource with in-depth information on a wide range of machine safety subjects and the complete line of ABB JOKAB SAFETY products. The "Switches" catalog contains complete technical and installation information on the complete line of ABB JOKAB machine safety switches.

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CIRCLE 329 ON CARD



Accountability: A Dirty Word in Safety

Is management ultimately responsible for safety, or is it the responsibility of the individuals performing the work? When an injury occurs, does the employee blame the employer or does the employer blame the employee? Blame should not be a part of the equation, but it often is.

Baseball legend and philosopher Yogi Berra once highlighted the madness of blaming others when he quipped, “I never blame myself when I’m not hitting. I just blame the bat and if it keeps up, I change bats. After all, if I know it isn’t my fault that I’m not hitting, how can I get mad at myself?” Work environment, processes, organizational systems, tools, and behaviors all combine to produce unique outcomes. So who is accountable for all of this?

Like safety, there are proactive and reactive sides to accountability. True accountability is ensuring you and others do what is necessary to accomplish certain results, before checking to see whether the results are received or not. This means you are just as responsible for your own safety as those responsible for the environment you work within; and accountability needs to evolve to focus on safety performance, not safety results.

To highlight this needed change, while advising many executives during the past couple of years among some of the best safety-performing companies, we often asked, “Are the expectations clear in safety?” Most respond with a resounding, “Of course!” then proceeded to clarify by outlining the expected results (i.e., zero injuries, no hurts, etc.).

Following these responses, a subsequent question is presented: “If the results expectations are clear, what percent of your direct reports know precisely what performance is necessary to achieve and repeat the desirable results? And if goals were reached, how many could articulate exactly why?” Answers that followed were far less confident than those to the preceding question.

Leaders must develop and master accountability to drive excellence in safety performance and culture. A methodological approach must exist to ensure, proactively and reactively, that individuals are held accountable for the vital performance necessary to succeed.

Develop Safety Roles, Responsibilities and Results™

The first step of this methodology is to collaboratively outline the top three to five Roles, Responsibilities and Results (RRRs) expected of someone in safety. Collaboration is important for ownership; let this be their discovery, not yours. This typically begins with involvement of the different levels to outline what excellence would look like in the observed performance of individuals of the many major levels in an organization.

Develop Proactive Safety Excellence Reinforcement System™

Wishing and asking for results are not effective approaches to safety, and annual performance reviews are a waste of time and resources if your feedback frequency is only once a year. There must be a strategy to hold someone accountable for key responsibilities. A balance of consequences for desirable and undesirable performance must be included. This balance of consequence has a role in both the aforementioned proactive and reactive sides of accountability. How will you hold them accountable, when, and where? What is your plan? Who will carry it out, both proactively and reactively?

Obtain Commitment from Individuals

While it is important to first develop your accountability reinforcement system, consider not deploying it until you obtain individual, private commitment to focus on the necessary RRRs. Generally, these discussions happen best between a leader and an individual direct report. Holding employees or supervisors accountable first without them witnessing their boss participating will perpetuate the blame perception. Most organizations rightfully begin this exercise by starting at the top and working down through one-on-one meetings to document the individual commitment necessary to begin the accountability discussions.

Communicate Expectations to Population (of levels, not individuals)

To help increase the effectiveness of your approach, positive peer and group pressure can be leveraged to strengthen the sense of self-accountability. While we rarely communicate individual roles and responsibilities to a group, we do encourage the communication of what others should experience (Results) if the individual is being the type of leader (Roles) we need him or her to be. One of the mechanisms to determine improvement is the feedback of those who should be experiencing the performance (Responsibilities) that was agreed upon. Are they having more, less, or the same types of experiences when working with these individuals?

Enable What Is Expected

Identifying what someone needs to do to contribute to desirable results will have an impact only if the individual has the willingness and capabilities. If a key responsibility is the individual’s leading more participative safety meetings or talks, can he? Does he have necessary speaking platform skills? Does he know where to get topics or how to develop materials? If you expect your leaders to become better performance coaches, rather than limited compliance cops, can they demonstrate competency in coaching for performance?

Execute Customized Accountability and Reinforcement Plan™

While there is more detail to this approach, in practice this methodology has been surprisingly simple to deploy with leaders eager to find breakthrough performance opportunities. The biggest challenge will be staying the course once an improvement in performance is recognized.

In safety, we learn the more proactive our efforts, the less we need to rely on reacting perfectly to events. There is no difference in accountability. The more we develop, coach, and focus on performance, the less attention you need to place on reacting to negative results. This shouldn’t be surprising; this is just good leadership. **OHS**

Shawn M. Galloway is the President of ProAct Safety. He is also the host of the highly acclaimed weekly podcast series, Safety Culture Excellence®. He can be reached at 800-395-1347 or info@ProActSafety.com.

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FALL PREVENTION



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MILLER TURBO T-BAK TIE-BACK PERSONAL FALL LIMITER



The Miller Turbo T-BAK Personal Fall Limiter is designed to tie-back anywhere along the lifeline for greater mobility and convenience. The *all-in-one design* incorporates a web retractable, with 7.5-ft. working capacity, and anchorage connector, reducing equipment required on the job site. Featuring the Miller 5K Locking Snap Hook with a 5,000 lbs. (22kN) gate load capacity from any angle.

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INTRODUCING THE REVOLUTIONARY LIFT FRONT HOOD!



The next generation of arc flash head protection is now available from Salisbury by Honeywell. This revolutionary hybrid combination hood is a pioneer in the electrical safety industry in that it promises to increase worker visibility, breathability and efficiency while maintaining the highest level of electrical safety protection.

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LABELED CERTIFIED GARMENTS



Workrite Uniform Company, Inc. is taking FR garment certifications to a new level of safety. Not only have we certified a wide variety of garments to the NFPA 2112 standard, but we also took the extra step to add an external label—making us the first FR garment provider to do so. An extra external label on certified garments allows customers to ensure their employees are wearing NFPA 2112-certified garments with a quick visual confirmation.

www.workrite.com

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24/7 FALL PROTECTION SKILLS



Fall protection equipment, barriers and procedures have come a long way, but falls remain one of the largest causes of injuries at work and at home—largely due to states like rushing, frustration, fatigue and complacency leading to errors like eyes and mind not on task which increase the risk of falling. These states also affect safety decision-making and deliberate risk. SafeStart teaches skills to combat this state-to-error pattern and reduce the risk of falls everywhere, 24/7. For an example, watch the video of Garry Wade's fall at www.safestart.com/garry or call 1-866-962-9577.

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PRODUCT LITERATURE

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TRAIN THE TRAINER



The **Scaffold Training Institute** provides "Train The Trainer" programs and on-site training anywhere in the world. Training materials include 340-page manuals, DVDs, a Powerpoint presentation, videos, and Interactive Computer Based Training on CD-ROM. Courses ranging from 8 hours to 40 hours in length are available. Visit or call 1-800-428-0162 for details.
www.scaffoldtraining.com

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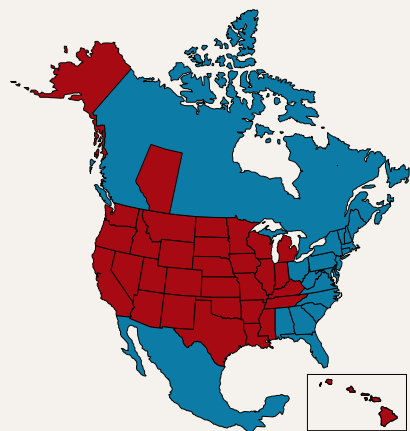
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Developing a Gung Fu Work and Lifestyle



With each day, a growing part of the world steps closer toward a Creativity Age, where assets are increasingly found *within* the minds and motivations of people. Think of this as the true final frontier where know-how is king. In fact, even in many resurging manufacturing companies, workers may be as likely to monitor and direct machines as they are to handle products manually.

In some organizations, this results in more people sitting, watching, thinking, and deciding. And their subsequent physical actions may be small movements that control larger processes, or machinery, or computers.

Such Reality Creators workers generate tangible products from their thought processes. They may work in offices, cubicles, or labs, in front of computers; planning, writing code, testing quality, identifying problems; alone or drawing others toward common ground – and in a wide range of industries. While it's obvious that pharma, high-tech, scientific, and financial services are driven by Creatives, it seems that every company – from heavy industry to oil to transportation – has an important share of such people.

And just as dispersed/remote workers have different challenges and exposures than plant-based ones, Creatives have custom needs that differ from more “procedural,” hands-on contributors. With these employees, elevating their mindsets is the name of the game. Leaders have to adjust their strategies and communications to support these more-mentally-than-physically-exerting workers in order to elevate overall performance. In fact, caring for their health, safety, and well-being is essential for nurturing and eliciting knowledge and developing creative approaches.

To give a hint on how to approach them, management guru Peter Drucker wrote in “Management Challenges for the 21st Century,” “More and more people in the workforce—and mostly knowledge workers—will have to manage themselves.” But how to reach these people, especially where many managers are more attuned to the conditions and needs of “old-style” industrial worker? We’ve found that it’s critical to first tap into the natural motivation of such workers. Further, while they might not initially identify risks to their health, safety, and well-being stemming from their work environment, many are motivated by mastering stress and high-grading their off-work hobbies and activities.

Not surprisingly, many geeks and other knowledge workers are intrigued by and drawn to martial arts. After all, what they and martial arts masters do is similar: drawing on their internal resources to change physical reality. Perhaps to balance their being less physically active at work, many Creatives are drawn to the idea of personal power (whether interest in superhero shows or video games, etc.) But what they may not know is that they can go beyond game fantasy to actually access and apply these powers to live a more creative, charged, healthy, and high-performance work and lifestyle – with the right methods and techniques. And this doesn’t require decades of hard training getting bruised and battered.

Such workers are often intrigued by a “Gung Fu Life — and Workstyle.” By the way, “Gung Fu” is not just a family of martial

arts; in Chinese, it really refers to learning any skills for becoming more effective.

In this light, here are three (of many) keys for motivating and changing actions of Creatives through internal martial arts principles that come from our decades of worldwide experience in many sectors.

■ **Develop Stress Power for more available energy.** I define stress as “the feeling of being out of control.” Any strategy that elevates personal control strengthens Stress Power — from better sequencing of task items to decreasing others’ resistance; same for techniques, from Breath Power to Dynamic Relaxation to methods for safer lifting or walking across a slippery parking lot. Negative stress can erode mental and physical health. When it is positively controlled, stress augments excitement, creativity, and engagement. This goes well beyond being a hypochondriac; numerous studies in the field of psycho-neuroimmunology clearly show how mental approaches and practices can either considerably weaken – or greatly strengthen – physical health.

■ **Self-control attention.** It’s critical to be able to clear the mind from external fears and concerns in order to attend to critical tasks. Like internal martial arts adepts, Creatives have to be able to shift at will between the four dimensions of attention: Broad External (scanning around to see what is going on overall), Focused External (homing in on a computer screen or other target), Focused Internal (retrieving a piece of information from memory), and Broad Internal (mentally assembling disparate data into a cohesive new approach.)

Concentration/focusing penetrates; awareness/broad attention notes and accepts. The right and controlled mix of all four attention patterns is critical to highest performance.

■ **Boost balance.** Physical balance in any position means using minimal muscle strength to overcome the pull of gravity by being internally aligned and relaxed. If a person is but 15 percent off balance, he is using about 15 percent more strength than needed. Internal martial masters see all actions and exchanges as energy to be directed; frittered away or tied-up excess physical energy can drain away from the power to pierce through persistent problems.

This applies to sitting, too. Sitting well, on balance, promotes mental alertness and also entails reducing shearing forces that build up from being stationary for protracted periods; this can distract attention from thinking and planning. And cumulative tensions from even slightly leaning or overfighting gravity also can wear down energy reserves better applied toward performance. It’s essential that Creatives learn to unload tensions in simple and invisible-to-others ways.

The above skillsets can be relatively quickly learned and developed with the right practice. By moving toward a Gung Fu state of mind and Gung Fu state of body, Creatives – in fact, everyone – can heighten their “superpowers” to better analyze, identify problems, develop creative options, craft specific solutions, and attain amazing status-quo-bending results. **OHS**

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